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MASKED BOB-WHITE (*COLINUS RIDGWAYI*).

BY HERBERT BROWN.

ONE OF the rare, if not the rarest, native birds in Arizona to-day is the Masked Bob-white (*Colinus ridgwayi*). It is not only rare in Arizona but also in the Mexican State of Sonora, the original habitat of the bird. For the past several years it has been safeguarded by law in this Territory, but unfortunately there are none left to protect.

I have been told by men who were familiar with the Sonoite and Santa Cruz valleys, in the early sixties, that these birds were then common thereabouts. I have also been told that "in early days" they were plentiful in Ramsey's Cañon in the Huachucas, and also on the Babacomori, a valley intervening between the Huachuca and Harshaw ranges. I remember hearing of them being there in 1881, but did not see them. Some ten years ago a market collector worked the Ramsey Cañon country and reported that he had not only taken the bird but an egg also. That he did these things I am extremely doubtful. To say positively that he did not would be to bump against a serious proposition, but he so warped the truth concerning other alleged remarkable finds that the late Major Bendire, one of the most honorable of men, upon the discovery of attempted fraud, refused further to examine material sent him by the party in question. I am, however, of the belief that these birds were in the cañon when white men first

entered that section of country, and it is possible that a few were still there on the discovery of the Tombstone and Harshaw mines, but if so they were speedily trodden out of existence by the inrush of fortune hunters. I mention this Ramsey Cañon business for the purpose of establishing the eastern boundary line of their former habitat in Arizona.

Prior to 1870, but just when I cannot now say, Major Bendire, then a Lieutenant of Cavalry, was stationed at Camp Buchannon, on the Sonoite, almost in the very heart of the country where the Bob-whites used to be, but, oddly enough, he did not see or hear them. At that time the valley was heavily grassed and the Apache Indians notoriously bad, a combination that prevented the most sanguine naturalist from getting too close to the ground without taking big chances of permanently slipping under it. For many years Indians, grass, and birds have been gone. The Santa Cruz, to the south and west of the Sonoite, is wider and was more heavily brushed. Those conditions gave the birds a better chance for life and for years they held tenaciously on. Six or seven years ago I was told by a ranchman, living near Calabasas, that a small bunch of Bob-white Quail had shortly before entered his barnyard and that he had killed six of them at one shot. It was a grievous thing to do, but the man did not know that he was wiping out of existence the last remnant of a native Arizona game bird. Later I heard of the remaining few having been occasionally seen, but for several years now no word has come of them.

I never found them west of the Baboquivari Mountains, and from my knowledge of the country thereabouts I am inclined to fix the eastern slope of that range as their western limit. Between that and Ramsey's Cañon, in the Huachucas, is a distance of nearly one hundred miles. Their deepest point of penetration into the Territory was probably not more than fifty miles, and that was down the Baboquivari or Altar valley.

In Sonora, Mexico, where I first met with the bird, it was known as Perdice, a name equally misapplied to *Cyrtonyx montezumae*. Just why it, or in fact either of these birds, should have been so termed I do not know, but think it was probably a localism used by the rancheros to distinguish it from Codornice, by which two other species of quail were commonly known. It is not easy to

describe the feelings of myself and American companions when we first heard the call *bob white*. It was startling and unexpected, and that night nearly every man in camp had some reminiscence to tell of Bob-white and his boyhood days. Just that simple call made many a hardy man heart-sick and homesick. It was to us Americans the one homelike thing in all Sonora, and we felt thousands of miles nearer to our dear old homes in the then far distant States. The omnipresent hope of "striking it rich" has made life's burden light to many a weary man, and when the 'Perdice' made its sweet call only those who have been similarly circumstanced can appreciate it as we did. Then, though but a young man, I had spread my blankets over much of the frontier West, and no one felt that letter from home more than I did. This I know has but little to do with the subject at issue, but I wish to show my familiarity with the bird at the time its identity was later called into question. True, I believed it to be *Ortyx virginianus*, "the Bob-white of the States," the same bird I had known as a boy in West Virginia, and as such I called attention to its being in Arizona.

In the spring of 1884 a man by name of Andrews, then living in the foothills of the eastern slope of the Barboquivaris, brought me a pair of these quail to Tucson. As I was on the point of leaving town for a business trip through the Territory I took the birds to the office of a friend and he promised to make them up as best he could for me. I then wrote a note to 'The Citizen,' a newspaper with which I was connected, stating that a pair of Bob-white Quail had been brought in, and so on. This note was subsequently republished in 'Forest and Stream,' where it was seen by Mr. Robert Ridgway, of Washington. He replied that there was no such thing as a Bob-white in Arizona and that the writer of 'The Citizen' article had probably mistaken some other well known form of quail for them. On being advised of this by Dr. Geo. Bird Grinnell, editor of 'Forest and Stream,' I went to my friend for the skins he had promised to make for me. To my regret I learned that the birds had been allowed to spoil and were then thrown out. Fortunately, or rather unfortunately as it turned out afterwards, portions of the birds were still to be had. These, through the kindness of Dr. Grinnell, were sent to Mr. Ridgway

and were by him identified as *Ortyx graysoni*, a Mexican species found in the neighborhood of Mazatlan. He expressed surprise at the bird being in Arizona. For my own collection I at once procured another pair. These latter birds were seen, examined, and commented on by W. E. D. Scott, E. W. Nelson, F. Stephens, and H. W. Henshaw, none of whom, with the exception of Scott, questioned the correctness of Mr. Ridgway's identification. Scott's remark was, after he had examined the birds a number of times, "I think they ought to be further inquired into," or words to that effect. Stephens was then in the country collecting for Mr. Brewster, of Cambridge, Mass. When in Sonora, just south of the Arizona line, he killed a male. On his return to Tucson we compared it with my specimens and found it to be the same bird. Mr. Stephens did not see the fragmentary skins that were sent to Mr. Ridgway through Dr. Grinnell, as stated erroneously by Prof. J. A. Allen in his very excellent article on 'The Masked Bobwhite of Arizona, and its Allies,'¹ but he saw and compared his bird with a pair of perfect skins then in possession of the writer. Later, Stephens sent his bird to Mr. Brewster, by whom it was described as a new bird and named in honor of Mr. Ridgway; hence we have *Colinus ridgwayi*.

It was never my good fortune to see an egg of this bird. When the late Major Bendire was stationed at Camp Buchannon, he found a broken shell of what he then judged to have been the egg of an *Ortyx*. The Ramsey Cañon collector, elsewhere referred to, claimed to have taken an egg from the body of the bird he said he had killed, but as his one story rests on no better foundation than the other it can be taken for what it is worth. About 1885, I think, I offered to Mexican vaqueros, riding the Sasabe Flat and Altar Valley ranges, one dollar per egg for the first nest of Bobwhite eggs found for me. Word was subsequently sent to me that a nest containing six eggs had been found on the mesa near the mouth of Thomas Cañon, on the eastern side of the Baboquivari Mountains. Unfortunately these precious things were lost through the cupidity of the finders whose expectations ran to more eggs, but while waiting for the increase the nest was robbed of the eggs.

¹ Bull. Am. Mus. Nat. Hist., Vol. I, No. 7, 1886, pp. 273-290.

that were then in it. I was, however, notified of the find, but when I reached there I found only an empty nest, a bowl-shaped depression in a bunch of mountain grass. I have regretted many times that I did not dig up the "situation" and take it home with me, but I did not then dream of their future rarity. The eggs had undoubtedly been taken by some reptile or animal, as no broken shells were found to indicate that they had hatched. Later I offered five dollars for the first egg of a Bob-white brought to me. I received a quail egg from a party by the name of Sturgis, then living at La Osa, a few miles north of the Mexican line. He claimed to have personally taken the egg from the nest and knew it to be that of a Bob-white. Although I had my misgivings I paid the money and then sent the egg to Major Bendire for examination. He reported it to be nothing more than a very pale egg of a *Callipella squamata*. I then wrote to friends in Sonora, but they never succeeded in getting me the much coveted egg.

The causes leading to the extermination of the Arizona Masked Bob-white (*Colinus ridgwayi*) are due to the overstocking of the country with cattle, supplemented by several rainless years. This combination practically stripped the country bare of vegetation. Of their range the *Colinus* occupied only certain restricted portions, and when their food and shelter had been trodden out of existence by thousands of hunger-dying stock, there was nothing left for poor little Bob-white to do but go out with them. As the conditions in Sonora were similar to those in Arizona, birds and cattle suffered in common. The Arizona Bob-white would have thriven well in an agricultural country, in brushy fence corners, tangled thickets and weed-covered fields, but such things were not to be had in their habitat. Unless a few can still be found on the upper Santa Cruz we can, in truth, bid them a final good-bye.

CURVED-BILLED AND PALMER'S THRASHERS.

BY JOSIAH H. CLARK.

THE following is a comparison of the measurements of the eggs of the Curved-billed Thrasher (*Harporhynchus curvirostris*) from Ramos, State of San Luis Potosi, Mexico, where the elevation is about 8,000 feet, with those of Palmer's Thrasher (*Harporhynchus curvirostris palmeri*) from El Plomo, Sonora, Mexico, where the elevation is about 1,200 feet.

Having been located as a mining engineer in the above mentioned localities, I had the opportunity of making a study of these birds. I am aware that the same variety of birds under different conditions of altitude or latitude will vary both as to the time of nesting and the number of eggs to a set. So that two men may describe the nesting habits of a bird, and though they may agree as to the composition and position of the nest, they will give a different average for the number of eggs to the set, the date of nesting, and their measurements.

For example, Mr. G. B. Sennett says the Curved-billed Thrasher along the Rio Grande in Texas commences to breed in March and lays four eggs. Mr. Charles J. Maynard says that it lays four or five.

I examined over one hundred nests of this bird during the years 1899 and 1900 and in all only three times were there more than three eggs, and these were, one nest with four young, and two nests with four eggs each. For Ramos I would say that the average was less than three, also their earliest nesting in May. The reason that the birds do not nest earlier is because April and May are the hottest months of the year in this locality, and there is not so much for the birds to eat; the rains begin in June. An example of late nesting at Ramos is the Scaled Partridge. The natives tell me it never nests before the middle of July. I found nests of fresh eggs August 1 and August 25. From this it shows how important it is not to rely too much on facts from any one locality, but as these two localities are especially favored by these birds, and as they outnumber all other birds almost two to one, I could not help comparing them, and I would like very much for

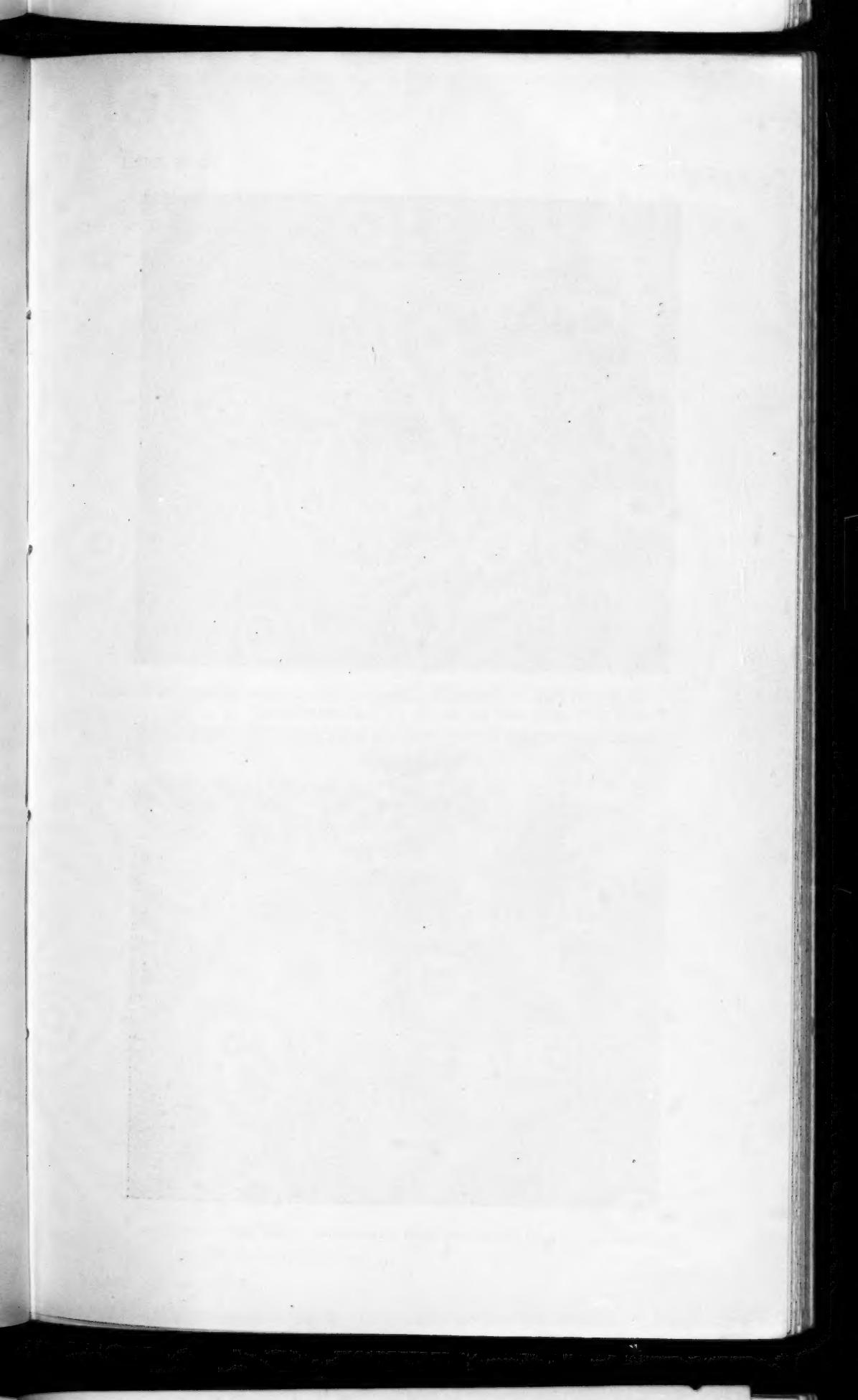




FIG. 1. NEST AND EGGS OF CURVED-BILLED THRASHER. Typical nest in a Nopalo Cactus.



FIG. 2. NEST OF CURVED-BILLED THRASHER. Typical next in Cholla Cactus.

any one who may have notes on these birds further north to compare them with the following.

Although these localities are separated by over eight hundred miles, the climate is the same and the country looks the same; in both cases we have a few mountains between which lie immense mesas and valleys which are mostly timberless and waterless, but covered with a curious growth of cacti in which the birds nest. The cacti of each place are different with the exception of the cholla, which is common in both places, and singularly enough it is the most common nesting site.

The new nest of both birds is generally near the old one, usually in the same cactus, and sometimes the old nest made over.

Sometimes the nest is completed two or three weeks before the eggs are laid. Then again, if the nest and eggs are taken the birds will have another nest and eggs in from twelve to fifteen days, and the new nest is usually about fifty feet from the one taken, but if the first nest is not disturbed the new nest will usually be about five feet from the old one.

The nests of both birds are the same, made of thorny twigs; in fact, nothing grows there without thorns on it, so they can get nothing else. These sticks are six to ten inches long, and form the outside of the nest, which is lined with wire grasses; sometimes horse hair is used in place of the grass, or with it. The nests are externally about ten inches in diameter and eight inches deep; internally about three and one-half inches, both in diameter and depth.

These birds are common permanent residents of these respective places and may be seen in pairs throughout the year, using their old nest for a roost.

The following sets do not represent average sets, but I have selected them to show the range in measurements.

Following are the measurements in millimeters of ten sets of the Curved-billed Thrasher.

Set No. 6	30.95 X 19.05	30.83 X 19.05	29.45 X 19.20
" 9	29.81 X 19.00	29.05 X 19.52	28.03 X 19.75
" 27	29.80 X 19.45	29.30 X 19.65	28.40 X 19.33
" 57	28.29 X 19.45	27.95 X 19.46	27.48 X 19.71
" 4	33.50 X 21.08	32.12 X 21.54	

Set No. 1	26.82 X 19.98	26.21 X 20.46	24.26 X 19.62
" 3	28.72 X 20.65	28.40 X 20.47	28.10 X 20.68
" 32	28.95 X 19.90	28.67 X 20.13	28.52 X 19.94
" 39	30.57 X 20.64	30.13 X 20.73	29.85 X 20.33 29.69 X 20.23
" 54	28.08 X 21.05	28.03 X 20.75	26.63 X 20.38

The average size of 158 eggs is 28.97 X 20.37 millimeters.

Of the above sets, numbers 6, 9, 27 and 57 were laid by the same bird, numbers 6 and 27 were from one nest and numbers 9 and 57 from another nest.

This shows how these birds retain the same nest from year to year. The dates were No. 6, May 28, 1899; No. 9, June 11, 1899; No. 27, May 19, 1900; No. 57 June 5, 1900. Though the dimensions of these four sets vary, the color and markings of all are the same. This fact has often been mentioned in regard to Hawk eggs taken from the same nest on consecutive years.

Following are averages taken from fifty-eight sets, taken during two years. Average number of eggs, 2.72. Average height of nest from ground, 3.9 feet. Of these nests, forty were in cholla cactus, sixteen in nopal cactus, and two in palma trees.

My earliest and latest records for fresh eggs were May 17 and July 2. The first brood is hatched about June 1 and leaves the nest in twelve days. The second nest is usually built by this time and the eggs are deposited shortly after.

On May 28, 1899, I found a nest with four young about two days old. This same pair of birds on June 11 had a new nest with three eggs. The male bird assists in incubation and also in care of the young.

Following are the measurements in millimeters of ten sets of Palmer's Thrasher.

Set No. 4	28.78 X 19.07	28.46 X 18.97	27.57 X 18.91
" 18	29.20 X 19.27	29.16 X 19.61	28.56 X 19.40
" 27	28.85 X 19.69	28.27 X 19.25	26.67 X 19.54
" 7	29.91 X 20.69	29.20 X 21.13	
" 12	30.71 X 20.44	30.32 X 20.43	29.19 X 20.63
" 13	30.95 X 19.82	30.85 X 19.82	
" 17	28.13 X 19.60	26.14 X 19.23	
" 19	30.78 X 20.52	30.52 X 20.45	30.00 X 20.20
" 22	32.60 X 20.00		
" 24	28.76 X 19.80	27.33 X 19.66	27.32 X 19.35

The average size of 79 eggs is 28.68 X 20.05 millimeters.

Of the above sets, numbers 4, 18 and 27 were laid by the same bird, a new nest being built for each set. The dates were March 14, 1898; March 30, 1898; and April 19, 1898.

The similarity of these nine eggs is very striking, and they differ a little in shape, which is elongate ovate, from all the other eggs.

Following are the averages taken from thirty-one sets. Average number of eggs in a set, 2.55. Average height of nest from ground, 4.2 feet. Of these nests twenty-seven were in cholla cactus, three in sibiri cactus, and one in palo verde tree. My earliest record for eggs was March 1, and most birds were nesting by March 14, and the second set is laid about April 20.

Generally the spots or specks are more thickly sprinkled on the eggs of the Curved-billed than those of Palmer's and the ground color is a little darker. But the description of one will do for the other.

The shape of the eggs varies a great deal, from ovate to elongate, or elliptical ovate.

The ground color is generally light bluish green, sometimes light green, bluish white or grayish white, minutely specked or spotted with cinnamon brown and lavender. In some eggs the markings are like fine pin points. The less the number of spots the larger they are. Usually there are not as many spots at the small end, and the spots are uniform over the middle and large end of the egg. In some eggs most of the spots are at the large end and in very few we have a wreath. In some the spots are so faint that they can just barely be seen. In no case are the markings so thickly sprinkled as in the average egg of the Brown Thrasher.

SAN CLEMENTE ISLAND AND ITS BIRDS.

BY GEORGE F. BRENINGER.

SAN CLEMENTE ISLAND lies fifty miles to the south from San Pedro, California, well out on the broad bosom of the Pacific. Midway is Catalina Island, that noted summer resort; and to the west, seventy-five miles from San Pedro, is San Nicholas. These islands, though distant by at least one hundred miles from Santa Cruz, Santa Rosa, and San Miguel Islands, are known collectively as the Santa Barbara group. It is but reasonable that they bear considerable affinity one with another in their flora and fauna, and while this is true in a way, there are instances quite to the contrary.

Geologically speaking these islands are the exposed tops of mountains, a sunken chain that ran parallel with the Coast Range. San Clemente Island, of which this paper treats, has an altitude of nearly 3000 feet, and a length of twenty-three miles by five miles wide. Frost is unknown, and in consequence vegetation grows rank most of the year.

Early in February of the present year (1903) I was instructed by the curator of the ornithological department of the Field Columbian Museum to make a collection of the birds on San Clemente and visit the other islands if possible. In accordance therewith I secured passage on a 33-foot gasoline schooner that made periodical trips to the island in quest of fish.

The length of my stay was gauged accordingly. On the island accommodations were secured with the man in charge of the San Clemente Wool Company's sheep. This man and his wife are the only inhabitants of the island, apart from a Chinese camp whose occupants remain on the island only during certain periods of fishing. The island is one of great interest alike to the ornithologist, botanist, and student of pre-historic man.

I found the rocky, surf-beaten shore tenanted by thousands of Black-bellied Plovers (*Squatarola squatarola*) in winter dress, and Black Turnstones (*Arenaria melanocephala*). A number of each were taken but proved so excessively fat that it was thought best to use the limited time on better material. The gulls found about

the island were the Western Gull (*Larus occidentalis*), Heermann's Gull (*Larus heermanni*), California Gull (*Larus californicus*), and the Glaucous-winged Gull (*Larus glaucescens*). The few individuals seen of *Larus glaucescens* were immature birds. Those seen of *Larus californicus* were migrating northward in small bunches. I had hoped to learn something of the nesting of *Larus heermanni* on the island, but in this I was disappointed. My host, who had spent most of fifteen years on the island, often found pleasure, from his solitary occupation, in noting the time different birds laid eggs. *L. heermanni* has never been known to nest on the island. *L. occidentalis* is the only one that brings forth its young there.

Out in the channel several lone individuals of the Black-vented Shearwater (*Puffinus gavia*) were seen skimming the swells. None were seen near land. A few California Pelicans (*Pelecanus californicus*) were seen among a number of Cormorants (*Phalacrocorax penicillatus* and *P. pelagicus resplendens*). Both of the cormorants nested on the island, but the pelicans are said to nest on some of the other islands. While rowing around the north end of the island my host pointed out to me nests of Fish Hawks (*Pandion haliaetus carolinensis*), Bald Eagles (*Haliaetus leucocephalus*), and Ravens (*Corvus corax sinuatus*), built on some projecting ledge or hole in the seawall. Our objective point, that morning, was a large rock, a mile distant from the end of the island, where my host said there was an eagle's nest, and at that date there should be eggs. As we neared the rock the huge nest, with a white head protruding, was outlined against the sky. Great seas broke about this time-worn mass of granite. A landing can be made only in calm weather. After the force of three or four swells had been broken, the boat was run up to the rock, and I jumped ashore and hastened upward while my man pulled the boat away to save it from being broken. The nest held two eggs, which were taken, but the one parent shot at was lost, falling in the surf or on the end of the island. Rough seas prevented a landing being made.

Up on a hillside, among green grass, my host pointed out another eagle's nest. The accumulation of years' repairing of the old nest had given it such height that a man standing by its side

could not see into the cavity. There were no indications of the occupancy of this nest. Very old birds prove vicious antagonists. A pair of eagles had used two nests alternately, one on each side of a deep gorge. As they have used one or the other during the past fifteen years they were known to be old birds, with a bad record. One season, at sheep-shearing time, one of the employees of the Wool Company, fresh from a land where there were no eagles, essayed to ride to the edge of the barranca and have a look at the young eagles. From above the old eagle swooped with unerring aim, and it was fortunate the grasp was not deeper, as with angry screams she flew away with his hat, dropping it into the sea. It was with this same eagle I was dealing. My man had gone down after the eggs, and while I was giving some minor directions, in an unguarded moment, a little dog that had followed from the house ran with a pitiful whine under my legs and curled up there in mortal terror. I had sat down on the ground, perhaps on account of proximity to the edge of the abyss and at the same time to have 'full swing' at rapid shooting. A moment after the dog had taken refuge an eagle came within a foot of striking me in the face with its wing. My gun came to my shoulder instantly. Bang! and a fine white-headed bird lay dying at the bottom of the barranca. The female, too, was secured.

Ravens (*Corvus corax sinuatus*) were numerous about the island; thirty-eight were seen circling over a small interior valley at one time. It was yet too early for eggs, though nests of previous years were seen along the seawall and in the side of the barrancas. At one place seven nests were seen in a space of less than one hundred yards. Even in this unfrequented spot the raven maintains his time-honored trait of the preservation of its kind by placing its nest in inaccessible places. Although shy birds at all times, curiosity gets the best of them now and then, and for this reason I brought away two fine skins.

One Western Red-tailed Hawk (*Buteo borealis calurus*) and a pair of Duck Hawks (*Falco peregrinus anatum*) were seen, and a male of the Duck Hawk was secured. White-throated Swifts (*Aëronautes melanoleucus*) were seen darting up and down some of the deep cañons. Hummingbirds were also detected, but the species could not be determined while in flight.

Particular interest attaches itself to many of the land birds. Centuries of isolation has developed habits and features quite different from the same species or closely related forms of the mainland. From association with most of the geographical races of *Melospiza* I have learned to frame Song Sparrows in the same scene with rippling brooks, moist meadows, and tule-bordered lagoons. Over the whole length and breadth of San Clemente Island there is no fresh water, except what may gather after a rainfall in the rock basins at the bottoms of the washes. There is absolutely no swamp ground, yet Song Sparrows are there in thousands, from the shores to the highest point of the island, feeding and nesting among the bushes of the hillsides, along with Bell's Sparrow (*Amphispiza belli*). On the mainland Bell's Sparrow marks the other extreme, making its home on the dry sage-covered mesas. Another departure is that of the San Clemente Wren (*Thryomanes leucophrys*), a numerous bird on the island, where it nests in the holes and crevices of the rocks. I am inclined to believe it also places its nest amid the protective arms of the prickly pear. *T. bewickii spilurus* and *T. b. leucogaster*, two closely allied forms of the mainland, both nest in holes in trees. The change is probably due to the conditions, for on most of the island there are no trees.

The same is true of *Carpodacus*, the form inhabiting the island being known as *Carpodacus frontalis clementae*. The sheep-sheds at the ranch were lined with nests of this bird, old and new, and at that early date I took several sets of four and five eggs. There were some nests built among the spiny leaves of the prickly pear, but by far the greater number were built in holes in the rocky wall of the sea. A pair built their nest in the interstices between the sticks of an eagle's nest. There were at the time of my visit no eggs in the finch's nest, though the eagle's nest was tenanted. The question naturally arises, does this species pass back and forth from the mainland to the island?

To a bird having the power of flight, as in *Carpodacus*, this is not at all impossible. On clear days Catalina Island is clearly visible from the mainland, only twenty-five miles away, while the channel between Catalina and San Clemente is but twenty-two miles wide. The House Finch nest built in an eagle's nest, of

which mention was made, was on a rock a mile from the island. These birds when disturbed flew without hesitation direct to the island. At Monterey, Cal., I have seen Robins (*Merula migratoria propinqua*), and Rufous Hummingbirds, in their northward movement leave the land at Point Pinos, flying directly out to sea, crossing the bay. Later while out three miles from shore, I saw Hummingbirds pass at the rate of one every five minutes. The distance from Point Pinos on the south to Point Santa Cruz, the north side of the bay, is thirty miles. While the migration of *Carpodacus* from the mainland to the nearer islands is possible, I think it very improbable. Migration is prompted largely by meteorological changes and food supply. On San Clemente Island food is abundant and the weather conditions are much the same the year round and whatever migratory instinct the House Finches ever possessed has been lost.

The Horned Lark, set apart as *Otocoris alpestris insularis*, a common bird on the island, is the most intensely colored variety of this species I have ever taken. The same is true of the Burrowing Owl (*Speotyto cunicularia hypogaea*) found on the island. Specimens compared with some from San Pedro, shows the island bird to be much darker.

One solitary Mountain Plover (*Podasocys montana*) was seen and taken. My host told me they wintered on the island in incredible numbers. Flocks of Sanderling (*Calidris arenaria*), and a few Hudsonian Curlew (*Numenius hudsonicus*) were seen on the beaches. Black Oyster-catchers (*Hematopus bachmani*) were said to inhabit the island, but I was not favored with a glimpse of these "birds with redlegs," as they are known to the fishermen.

I am at a loss to account for the mortality among the Auklets (*Ptychoramphus aleuticus*) frequenting the water about the island. Along the shores and on the water dead Auklets were seen everywhere. Eagles and Duck Hawks fed on those that were not yet dead, while ravens and gulls fed by day on the dead that were thrown up among the rocks, and the foxes foraged over the same ground at night.

A flock of Meadowlarks (*Sturnella magna neglecta*) was encountered well up toward the top of the island. These were resident and bred on the island. Contrary to the habits of most birds that

are never molested by man, it was absolutely impossible to approach these birds except by stealth. I met the birds each morning, and as many times tried to secure a specimen; one hundred to two hundred yards was the nearest approach permitted before they resorted to flight. One was finally secured by taking advantage of a board fence that crossed the island and some intervening bushes; creeping forward as far as was safe without being seen, a 75-yard shot with No. 5 shot secured the long sought for bird.

Rock Wrens (*Salpinctes obsoletus*) were fairly numerous but differed in no way from the same species on the mainland. A pair of Large-billed Sparrows (*Passerculus rostratus*) were seen in a patch of salt grass and one of the two secured. Black Phœbes (*Sayornis nigricans*) Say's Phœbe (*Sayornis saya*) were both present, probably migrants from the mainland.

Mockingbirds (*Mimus polyglottos leucopterus*) breeds sparingly on the island, perhaps less than a half dozen pairs. Only one was seen and taken. One shrike (*Lanius*) was seen but not taken. A Great Blue Heron (*Ardea herodias*) was seen at different times, but always alone.

A LIST OF LAND BIRDS FROM CENTRAL AND SOUTHEASTERN WASHINGTON.

BY ROBERT E. SNODGRASS.

THE list of birds here given is the ornithological result of a collecting expedition sent into the field during the summer of 1903 by the Washington Agricultural College. The expedition started from Pullman and, going westward through Connell and across the White Bluffs Ferry on the Columbia River as far as the town of North Yakima, traversed the southern part of Whitman County, the southeastern corner of Adams County, Franklin County, the extreme south end of Douglas County, and the north-

eastern part of Yakima County. Returning it crossed the central and southeastern part of Yakima County, Walla Walla, Columbia and Garfield Counties, and the southeastern part of Whitman County, coming by way of Prosser, Wallula Ferry on the Columbia River, Walla Walla, Bolles, Dayton, Pomeroy and Almota Ferry on the Snake River.

The collectors were Mr. C. V. Burke, Mr. E. A. MacKay, Mr. E. Crawford, and the writer. Specimens were obtained of nearly all the birds recorded.

The area covered embraces several very different sorts of country. It is all, geologically, a part of the great Columbia lava sheet, but climatic and altitudinal conditions have formed two very distinct biological zones.

The eastern part of Whitman County is a rich wheat-growing section having a comparatively heavy-rainfall and an altitude of 2000 feet or more. It is treeless, except in the cañons, and its original predominant vegetation was bunch-grass (several species of *Agropyron*) which grew luxuriantly everywhere. A characteristic member of the fauna is the extremely abundant Columbian Ground Squirrel (*Citellus columbianus*), and one of the commonest birds in the summer time is the Catbird. As one goes west the climate becomes dryer and a small stunted sage-brush replaces the bunch-grass. The large Columbian Ground Squirrel abruptly disappears and a smaller, grayer species (*C. townsendi*) takes its place. One is here on the transition area between the narrow fertile strip along the eastern border of the State and the great arid region of the middle part.

Franklin County is excessively arid. The eastern half is partly under cultivation, large tracts being ploughed and planted to wheat. Water, however, is so scarce that the farmers have to haul all that they use from the few wells and springs that occur. Many have to go ten and twelve miles for their water, transporting it in large wagon tanks. The country about the town of Connell presents a scene of utter desolation. During the summer there is no solid ground anywhere — all is dust; there is not a green thing in sight and scarcely a stump of anything that ever was green. The dried-up sage-brush is only a few inches high. Most of the country west of Connell is still an unbroken desert. The sage-

brush here is larger, however, and growing with it is considerable bunch-grass, so that this region does not look quite so desolate as the Connell district. Twelve miles west of Connell on the road to White Bluffs Ferry — a distance of nearly thirty miles — there is a spring located in a deep coulee. This is the only water to be had until one gets to the Columbia River. West of this spring the country is covered with sand that has drifted east from the river, and which has buried and obliterated almost every plant form except what sage-brush has been able to continually push up through it. The sand becomes deeper as one approaches the river, but several miles inland it has drifted up into great dunes. The sand, together with the lack of water, makes a journey across this region an extremely hard one on horses. Bird and insect life is almost absent. Occasionally one meets with a few Horned Larks or Sage Sparrows and now and then a Meadowlark. Rather frequently the Pigmy Horned Toad (*Phrynosoma douglasii*) and a small lizard (*Sceloporus graciosus*) are seen. Near the Columbia also another lizard (*Uta stansburiana*) occurs.

Along the banks of the Columbia at White Bluffs there is no more fertility than farther inland. A few scattered willows grow close to the water. Birds, however, are more abundant. Besides the Sage Sparrows, Horned Larks, and Meadowlarks, there occur here Sage Hens in abundance, Mourning Doves, Sparrow Hawks, a few Burrowing Owls, many Magpies, numerous Nighthawks, a few Kingbirds, Red-winged Blackbirds, Brewer's Blackbirds, many Shrikes, and a few Rock Wrens along the cliffs facing the river.

Yakima County is more diversified. High hills form the divide between the Columbia and Yakima Rivers. These hills contain almost no water and support the ordinary desert fauna and flora. The narrow Yakima valley, however, is very fertile and, in the neighborhood of North Yakima, the country is covered with large groves of trees — principally cottonwoods. This region is also extensively irrigated and, hence, presents a striking contrast to the region east of it. Although there is a rich bird-fauna here, one is surprised at the absence of a number of common birds. For example, during nine days of collecting, from July 4 to 13, we saw no Owls, Horned Larks, Orioles, Vesper Sparrows, Tanagers,

Shrikes, or Bluebirds. On the other hand, one bird, the Ash-throated Flycatcher, occurs here but was observed nowhere else in the State. The Yakima Ground Squirrel (*Citellus mollis yakimensis*) is not numerous but is characteristic of the Yakima River region.

South of the North Yakima country trees are less abundant along the river, and the fertile country forms only a narrow strip through the sage-brush. A small gray chipmunk (*Eutamias pictus*) and the lizard *Uta stansburiana* are common.

At Prosser we left the Yakima Valley and, after ascending the bluffs south of the town, came out upon the high plateau known as the "Horse Heaven" country. This is a most arid region occupying the area east of the Yakima Indian Reservation and south of the Yakima River. Bunch-grass grows amongst the sage-brush (whence probably the name of "Horse Heaven"), but the country is almost devoid of water. From one well, operated by a company, water is sold to the settlers for miles around. Others haul water ten or fifteen miles out of the Yakima Cañon! We traversed "Horse Heaven" from Prosser to Wallula Ferry, and here crossed the Columbia into Walla Walla County. On both sides of the river from White Bluffs Ferry to Wallula Ferry the country presents the same desolateness as it does farther inland. Just below Wallula the Columbia enters a deep, walled cañon of basalt.

The western part of Walla Walla County is the same sort of desert as the region west of the river. The surface is formed mostly of a fine, white, chalky tufa deposit. This same tufa formation occurs all along the Yakima Valley south of North Yakima interbedded between layers of basalt. Narrow, horizontal beds of it also give the white appearance to the cliffs on the Columbia known as White Bluffs. For about fifteen miles up the Walla Walla River from Wallula the sage-brush prevails. Only along the narrow river bottom are there a few trees and bushes. Here also are a few small alfalfa fields and orchards. Birds are extremely scarce—no Sage Sparrows or Sage Thrashers were seen on this part of the desert.

Near the city of Walla Walla, however, one comes again into the wheat-growing region where water can be obtained by means of wells, and where *Citellus columbianus* flourishes. From here

eastward moisture and fertility rapidly increase. Groves of trees fringe both the Walla Walla River and the Touchet Creek and all the hills are covered with flourishing wheat fields. In all of the arid region wheat grows from a few inches to a foot in height. The Walla Walla wheat-growing country is said to have been originally clothed with bunch-grass. From Bolles to Dayton the narrow cañon of the Touchet supports a thick growth of trees and underbrush. Outside of the cañon the country is treeless and covered with wheat-fields.

From Dayton on through Columbia and Garfield Counties the surface is cut by extremely deep cañons through which the Tucanon, Pataha and Deadmans streams flow northwest into the Snake River. This country is also treeless, except in the cañons, and the higher parts are covered with bunch-grass, much of it still unbroken. In the cañons, however, one descends again upon the Upper Sonoran desert forms. The cañon of the Snake River is an enormous gorge about 2000 feet deep. Its climate is much warmer and more arid than that of the surrounding country, so that within two or three miles one can descend from one biological zone into another very distinctly different one.

On crossing the Snake River from the south and coming into the elevated region of the Palouse River one is again within the country of the Catbird. The abrupt contrast between the productivity of this country and of that to the west and south is most striking, and shows the great superiority of the Palouse region as a wheat-growing country. The fauna and flora are also richer and more varied, and a list of the birds would show a greater number of species here than occur anywhere in the arid parts.

The following list does not include the Palouse region species.

1. *Pediæcetes phasianellus columbianus.* COLUMBIAN SHARP-TAILED GROUSE.—Not seen in any of the sage-brush region of Franklin or Yakima Counties; abundant along the Touchet Creek in Walla Walla County; a few seen in Garfield County.

2. *Centrocercus urophasianus.* SAGE HEN.—This species occurs throughout the entire sage-brush area of central Washington. It was found especially abundant on the sandy desert region along the White Bluffs of the Columbia River in the southern end of Douglas County.

3. *Zenaidura macroura.* MOURNING DOVE.—Common almost everywhere; observed throughout Whitman, Franklin, Yakima, and Walla Walla counties.

4. *Cathartes aura*. TURKEY VULTURE.—A few seen in Franklin County, about North Yakima in Yakima County, and in Walla Walla County.

5. *Buteo borealis calurus*. WESTERN RED-TAIL.—Common everywhere throughout the eastern central and southeastern parts of the State.

6. *Falco mexicanus*. PRAIRIE FALCON.—Found rather common at Almota along the bluffs of the Snake River Cañon.

7. *Falco sparverius phalcœna*. DESERT SPARROW HAWK.—Common everywhere.

8. *Megascops asio macfarlanei*. MACFARLANE'S SCREECH OWL.—Two immature specimens taken on the Touchet Creek near Bolles in the eastern part of Walla Walla County, but the species was not seen elsewhere.

9. *Bubo virginianus lagophonus*. WESTERN HORNED OWL.—Several seen at White Bluffs on the Columbia River, southern Douglas County.

10. *Speotyto cunicularia hypogæa*. BURROWING OWL.—Extremely abundant in the southwestern part of Whitman County; occurs all the way across Franklin County; comparatively scarce in Yakima and Walla Walla Counties.

11. *Ceryle alcyon*. BELTED KINGFISHER.—Occurs along nearly all streams. Observed on the Columbia, Yakima, and Walla Walla Rivers, and on the Touchet Creek.

12. *Dryobates pubescens gairdnerii*. GAIRDNER'S WOODPECKER.—Common in the trees along the Yakima River at North Yakima.

13. *Asyndesmus torquatus*. LEWIS'S WOODPECKER.—Extremely abundant in the groves of trees along the Yakima and Walla Walla Rivers and the Touchet Creek.

14. *Colaptes cafer collaris*. RED-SHAFTED FLICKER.—Found wherever trees occur.

15. *Chordeiles virginianus henryi*. WESTERN NIGHTHAWK.—Common everywhere throughout Whitman, Franklin, Yakima, and Walla Walla Counties. In the more desert places, such as at White Bluffs on the Columbia River and in the dry "Horse Heaven" country in southern Yakima County, it has the habit of flying about a great deal at all times of the day. It was not observed to do this nearly so much in the less arid or tree-covered regions about North Yakima and along the Touchet Creek in Walla Walla County, or in the more humid region of Columbia, Garfield, and Whitman Counties.

16. *Trochilus alexandri*. BLACK-CHINNED HUMMINGBIRD.—Common at North Yakima. No other species of Hummingbird seen anywhere.

17. *Tyrannus tyrannus*. KINGBIRD.—Common almost everywhere throughout Whitman, Franklin, Yakima, Walla Walla, Columbia, and Garfield Counties.

18. *Tyrannus verticalis*. ARKANSAS KINGBIRD.—This species is much more local in its distribution than the last. It is abundant in Whitman, Garfield, and Columbia Counties, but very rare about North Yakima,

and in the "Horse Heaven" country of Yakima County. It was found rather numerous in the Yakima valley south of Toppenish, and a number were observed between Wallula and Walla Walla in Walla Walla County, but about Bolles none were seen.

19. *Myiarchus cinerascens.* ASH-THROATED FLYCATCHER.—This species was found only along the Yakima River; several specimens were secured at North Yakima. It was not common, however, and has not been reported from any other part of the State.

20. *Sayornis saya.* SAY'S PHOEBE.—Common everywhere east of the Columbia, and north of the Snake River. Very rare in Yakima County— one individual seen near the station of Satus in the Yakima River valley. Common also in Garfield County between Pomeroy and Alnota Ferry. It is curious that this bird should be so scarce in the fertile and wooded country along the Yakima River and yet be found all over the desert region east of the Columbia River. Elsewhere it does not shun trees.

21. *Empidonax difficilis.* WESTERN FLYCATCHER.—Common in all suitable country where there are at least a few trees. Observed at North Yakima; along the Walla Walla River; on the Touchet Creek; in Columbia and Garfield Counties, especially in the deep cañons of the Tucannon, Pataha and Deadmans streams; and found very abundant at Almota in the Snake River Cañon.

22. *Otocoris alpestris merrilli.* DUSKY HORNED LARK.—Abundant everywhere; the prevailing bird in nearly all desert places; no matter how arid and desolate a region may be the larks are sure to be there, even when other birds are almost entirely absent. Found especially numerous on the sand and sage-brush covered region east of White Bluffs, in the excessively arid "Horse Heaven" country of Yakima County, and in Garfield and Columbia counties.

23. *Pica pica hudsonica.* AMERICAN MAGPIE.—Common in all of the lower or wooded parts of the region traversed. Abundant along the Columbia River at White Bluffs; in the trees along the Yakima River at North Yakima; along the Walla Walla and Touchet streams; and in the deep cañons of the Tucannon Creek and Snake River.

24. *Corvus americanus.* AMERICAN CROW.—Not found abundant anywhere. A few small bands and single individuals seen at North Yakima and in Walla Walla County.

25. *Molothrus ater.* COWBIRD.—Common in Whitman County. A few seen in Yakima and Walla Walla Counties.

26. *Agelaius phoeniceus neutralis.* SAN DIEGO RED-WING?—Lacking material from other localities for comparison, the writer cannot state definitely to what variety the Red-wing of the inland Northwest belongs. It is not very abundant anywhere in the central or southeastern parts of the State since marshes and swamps are scarce. A few, however, occur in congenial places.

* 27. *Sturnella magna neglecta.* WESTERN MEADOWLARK.—Common everywhere in all kinds of country.

28. *Icterus bullocki*. BULLOCK'S ORIOLE.—Scarce over all the region traversed. None were seen anywhere in the open, sage-brush desert areas, nor were any met with in the fertile, tree-covered country about North Yakima. Several individuals were seen farther south in the Yakima valley at Prosser. A few also occur in the strips of trees and brush along the Walla Walla and Touchet streams in Walla Walla County. Common in eastern Whitman County.

29. *Scolecophagus cyanocephalus*. BREWER'S BLACKBIRD.—Abundant almost everywhere, except in sage-brush regions where there is no near access to water.

30. *Astragalinus tristis*. AMERICAN GOLDFINCH.—This species is common in Whitman and Garfield Counties, but it is almost rare in the arid regions to the west. A few were seen at North Yakima and in Walla Walla County.

31. *Poecetes gramineus confinis*. WESTERN VESPER SPARROW.—The distribution of this bird in the central parts of the State is rather curious. It is abundant throughout all the sage-brush country of Lincoln County and the northern half of Douglas County from the edge of the timber west of Spokane to Waterville. Here it is the predominant bird of the sage-brush and wheat fields. To the south, however, in Franklin, Yakima, and Walla Walla Counties, we did not meet with it, and the Chipping Sparrow was the predominant bird. In Whitman and Garfield Counties both of these species are common field birds.

32. *Chondestes grammacus strigatus*. WESTERN LARK SPARROW.—A common bird in Whitman, Garfield, and Walla Walla Counties, and a few individuals were seen at North Yakima in Yakima County. Generally it avoids the dryer desert regions.

33. *Spizella socialis arizonæ*. WESTERN CHIPPING SPARROW.—Abundant over all the region traversed: in the tree-covered country about North Yakima and along the Walla Walla and Touchet streams of Walla Walla County; on the sage brush deserts of Franklin and Yakima Counties; and on the bunch-grass or wheat regions of Columbia, Garfield, and Whitman Counties. Very rare in the northern half of the desert regions of the central part of the State. None were seen last summer during a trip through Lincoln County and the Grand Coulee region of Douglas County.

34. *Spizella breweri*. BREWER'S SPARROW.—This bird has, very curiously, almost the same distribution over the desert region of the State as has the Vesper Sparrow. In Lincoln and northern Douglas Counties the two invariably associate together. In Franklin and Yakima Counties, where the Vesper Sparrow is apparently absent, Brewer's Sparrow is very rare. We obtained one specimen of the latter at North Yakima and saw one or two small birds at White Bluffs that appeared to be this species. On our way east from Wallula, through the southern tier of counties, we came upon the Vesper Sparrow again in Garfield County and, simultaneously with it, we found Brewer's Sparrow.

35. *Amphispiza belli nevadensis*. SAGE SPARROW.—In going west through Franklin County we first came upon this bird just a little to the east of Connell. One is here, also, well within the arid desert region. West of Connell the Sage Sparrow became the predominant Fringillid of the sage-brush. The Horned Larks outnumber them everywhere, but the latter are numerous everywhere else as well and are, hence, in no way characteristic of the desert. In Yakima County we found the Sage Sparrows abundant all the way from White Bluffs Ferry on the Columbia to the cultivated parts about North Yakima. Here they were absent. To the south again, across the "Horse Heaven" arid country and in the western half of Walla Walla County, they prevailed everywhere. During the previous summer we found this bird between Adrian and Ephrata on the Great Northern Railway and about Loop Lake in the southern end of the Grand Coulee but nowhere to the north of here. Hence, their range northward is not coincident with the extent of the desert.

During the summer the Sage Sparrow is a very quiet bird. None were heard singing and the only sound they uttered was a low *peet*-like note. They generally associate in small flocks composed of both adult and immature birds. The food consists of seeds and insects.

36. *Melospiza cinerea montana*. MOUNTAIN SONG SPARROW.—There appears to be only one form of Song Sparrow occupying the entire eastern, southeastern and central part of the State. Comparisons of a large number of specimens from Whitman, Lincoln, Douglas, Yakima, and Walla Walla Counties show an absolute uniformity of color and proportions in the specimens from all the localities.

Abundant in Whitman County; absent on desert regions; extremely numerous about North Yakima; a few along the Walla Walla and Touchet streams in Walla Walla County.

37. *Pipilo maculatus megalonyx*. SPURRED TOWHEE.—A few Black Towhees occur about North Yakima, and a few were found in the thickets along the Touchet Creek in Walla Walla County. The same form occurs in eastern Whitman County, along the Snake River, and along the Clearwater River in Idaho. Comparison with specimens from other localities shows that the eastern and central Washington form is probably *P. m. megalonyx*.

38. *Zamelodia melanocephala*. BLACK-HEADED GROSBEAK.—Common at North Yakima, less abundant in Walla Walla County, common in eastern Whitman County and in the Snake River cañon at Almota.

39. *Cyanospiza amœna*. LAZULI BUNTING.—Common everywhere except in arid sage-brush regions.

40. *Piranga ludoviciana*. LOUISIANA TANAGER.—Rare on all the region traversed. One specimen obtained at Prosser in Yakima County and another at Bolles in Walla Walla County.

41. *Petrochelidon lunifrons*. CLIFF SWALLOW.—Common wherever swallows occur.

42. *Hirundo erythrogaster*. BARN SWALLOW.—Occurs almost everywhere but is less abundant than the last.

43. *Ampelis cedrorum*. CEDAR WAXWING.—Common at North Yakima but not seen elsewhere.

44. *Lanius ludovicianus excubitorides*. WHITE-RUMPED SHRIKE.—Occurs on all arid sage-brush country. Extremely numerous on the very desolate desert to the east of White Bluff on the Columbia River. Scarce in the fertile and cultivated country about North Yakima.

45. *Vireo olivaceus*. RED-EYED VIREO.—Found along the Touchet Creek in Walla Walla County and in the Snake River cañon at Almota. Neither seen nor heard at North Yakima.

46. *Vireo solitarius cassinii*. CASSIN'S VIREO.—Found only at North Yakima, and not common there.

47. *Dendroica aestiva*. YELLOW WARBLER.—Common in all suitable places—never seen on open desert country.

48. *Geothlypis tolmiei*. MACGILLIVRAY'S WARBLER.—Found at North Yakima, and at Bolles on the Touchet Creek in Walla Walla County. Not common at either locality and always found in dense thickets.

49. *Geothlypis trichas occidentalis*. WESTERN YELLOW-THROAT.—Abundant at North Yakima.

50. *Icterus virens longicauda*. LONG-TAILED CHAT.—Occurs in all suitable localities in the central and southeastern parts of the State. Excessively abundant about North Yakima. Almost everywhere else they are extremely shy and retiring, but here they continually exposed themselves and sat openly in the trees while singing. Their notes were the most numerous of all bird sounds heard.

51. *Oroscoptes montanus*. SAGE THRASHER.—Not observed on the desert of Franklin County, but rather numerous on the west side of the Columbia River between White Bluffs and North Yakima, especially on the Yakima side of the divide. A very few inhabit the tree-covered area along the Yakima River near North Yakima. Numerous in the arid "Horse Heaven" country of southern Yakima County. None observed in the desert western part of Walla Walla County. None heard singing anywhere.

52. *Galeoscoptes carolinensis*. CATBIRD.—Common in the eastern part of Whitman County, but not observed in any of the other counties traversed.

53. *Salpinctes obsoletus*. ROCK WREN.—Common in all deep cañons and in rocky places. Observed at White Bluffs on the Columbia River, in the cañon of the Tucannon Creek in Columbia County, in similar cañons in Garfield County, and in abundance in the Snake River cañon at Almota.

54. *Catherpes mexicanus punctulatus*. DOTTED CAÑON WREN.—One specimen taken at Almota in the Snake River cañon. Only one other individual seen here. It occurs also at Wananaí Ferry a few miles farther up the river. Not observed elsewhere.

55. *Troglodytes aëdon aztecus*. WESTERN HOUSE WREN.—Rather common at North Yakima where four specimens were taken. Not

observed elsewhere on the trip, although a House Wren occurs in the eastern part of Whitman County. The three adult specimens are very pale grayish-brown above and, hence, probably belong to the variety *aztecus* rather than to *parkmani*.

56. *Parus atricapillus occidentalis*. OREGON CHICKADEE.—Common everywhere in trees and bushes along streams. Taken at North Yakima and at Bolles.

The specimens appear to belong to the variety *occidentalis* rather than to *septentrionalis*. The tail is equal to the wing or is slightly shorter. Fall specimens taken at Pullman in Whitman County have the back a brownish olive-gray, the sides and flanks widely and strongly shaded with brownish, the white being reduced to a small median area on the breast and upper part of the belly; tail feathers without whitish terminal margins. Compared with specimens of *P. a. septentrionalis* from Colorado they are decidedly darker above and more fulvous on the sides. The summer specimens are in poor and ragged plumage.

57. *Hylocichla ustulata*. RUSSET-BACKED THRUSH.—Excessively abundant in the groves and thickets along the Yakima River near North Yakima. Their clear, loud, ringing, metallic notes to be heard everywhere and at all times from early in the morning until late in the evening. A common song resembled *rhy'a-cha-veel'-ya, rhy'a-cha-veel'-ya*. The bird itself was much less frequently seen than heard. They were extremely wary and always kept themselves concealed in a thick bush or densely-leaved tree. They seemed always to know just when they were discovered, for invariably when one had just about located a bird after long looking the latter would suddenly but quietly dart out of its concealment to some other bush or tree some distance off. The same form occurs at Pullman in eastern Whitman County, and this is probably the thrush commonly met with in any part of the State.

58. *Merula migratoria propinqua*. WESTERN ROBIN.—Occurs everywhere except in desert regions. Common at North Yakima, especially amongst the trees in town; rather scarce in Walla Walla County.

BIRDS OF ALLEGANY AND GARRETT COUNTIES,
WESTERN MARYLAND.¹

BY G. EIFRIG.

THE topography and physiography of the two westernmost counties of Maryland are very complex and interesting, and accordingly the faunal and floral life-zones and areas are correspondingly complex and interesting. The lowest point that I can find on the beautiful maps lately published by the Maryland Geological Survey is 500 feet above sea level. This is in the extreme southeastern corner of Allegany County, on the Potomac River, and is the only point so low in the section under consideration. From this the elevation rises at many places very rapidly to 2500–3000 feet and attains the greatest height, 3400 feet, on the summit of the Great Backbone Mountain in the southwest corner of Garrett County and of the State. Cumberland is 800 feet, Frostburg, both in Allegany County, 2000 feet, rising rapidly to the top of the Big Savage Mountain, on whose side it lies, to 3000 feet. Oakland, Accident, and Finzel, Garrett County, lie in the broad glades and basin between the high ridges, all being 2400 to 2600 feet in elevation. These higher ridges, such as the Backbone, Big and Little Savage, Negro, Meadow, and Dan's Mountains, the last with Dan's Rock, from which a sublime view is to be had, are 2800 to 3400 feet high.

The lower parts, of which Garrett County has next to none, are in the Upper Austral or Carolinian life-zone, as is plainly to be seen by birds like the Cardinal, Tufted Titmouse, Carolina Wren, and Bluebird being permanent residents, and by trees like the tulip tree (*Liriodendron tulipifera*), sassafras (*S. sassafras*), dogwood (*Cornus florida*), and black gum (*Nyssa sylvatica*). The

¹ Since Maryland is very narrow in its western part, being at Cumberland only five miles, and as many of these observations have been made along the two boundaries of the State — the Potomac River on the one side and the Mason and Dixon line on the other — and have been frequently corroborated on the other side of each, this list holds good also for the adjoining part of West Virginia and for Somerset County, Pennsylvania.

hills and mountains from about 1500 feet upwards, except some southern mountain sides, and about all of Garrett County, are in the Alleghanian division of the Transition zone, characterized by an intermingling and overlapping of northern and southern types of the fauna and flora. The tops of the highest mountains, those in the neighborhood of 3000 feet, contain a strong admixture of high Transition and even Boreal species. This is especially evident in the sphagnum, alder, and cranberry swamps on the tops of some of these mountains and in the small depressions between them, e. g., in the one between the Big and Little Savage Mountains, near Finzel, Garrett County, or the one on top of Negro Mountain near Accident, at both of which places I have frequently been. There are also some dark, virgin tracts of fine tall spruce and hemlock here, soon to be desecrated by the ax, where Boreal conditions of fauna and flora exist. In such places may be found, of birds, the Carolina Snowbird (*Junco hyemalis carolinensis*), Blue-headed Vireo (*Vireo solitarius*), Magnolia Warbler (*Dendroica maculosa*), Canadian Warbler (*Wilsonia canadensis*), Red-breasted Nuthatch (*Sitta canadensis*), and the Hermit Thrush (*Hylocichla guttata pallasii*); of mammals, the Redbacked Mouse (*Ervotomys gapperi*), Canadian White-footed Mouse (*Peromyscus canadensis*), and Varying Hare (*Lepus americanus virginianus*); of trees and other plants, the tamarack (*Larix laricina*), black spruce (*Picea mariana*), golden club (*Orontium aquaticum*), cranberry (*Vaccinium macrocarpon*), wild calla (*Calla palustris*), gentian (*Gentiana angustifolia*), etc.¹

Thus, while it may in general be said, that the fauna of Allegany County is a mixture of Carolinian and Transition, and that of Garrett County Transition, high Transition, and even Boreal, yet these zones and areas overlap, intergrade, and run into each other in a most surprising and very interesting way. Tongues of Carolinian fauna and flora run into the Transition and Boreal belts,

¹ For some of these statements, notably for those on mammals, I am partly indebted to an excellent paper in the Maryland Geological Survey Report on Allegany County, entitled: 'The Fauna and Flora,' etc., 'The Summer Birds of Western Maryland,' by C. Hart Merriam and Edward A. Preble.

especially along the creeks and rivers; e. g., the Louisiana Water-Thrush (*Seiurus motacilla*) follows up the water courses into the domain of the Water-Thrush (*Seiurus noveboracensis*), and the Catbird is found side by side with the Alder Flycatcher, Carolina Junco, and Hermit Thrush. On the other hand, tongues of the Transition zone extend far into the Carolinian, as, e. g., the Chestnut-sided and Golden-winged Warblers (*Dendroica pennsylvanica*, *Helminthophila chrysoptera*) bred quite plentifully this year right near Cumberland, and plants like the clammy azalea (*Azalea viscosa*), turk's cap lily (*Lilium superbum*), *Maianthemum canadense*, etc., follow rivers and cool northern mountain sides far down, where they do not seem to belong. I can recommend Oakland, and the glade district of Garrett County in general, as a veritable naturalists' paradise, as it is also a place where coolness reigns in summer and pure, delicious, ozone-laden air is found in abundance. There many beautiful and some rare plants flower in profusion; for instance, the wood lily (*Lilium philadelphicum*), the turk's cap lily (*L. superbum*), and the meadow lily (*L. canadensis*) can be found at the end of July, blooming side by side, and while hearing or seeing the Magnolia, Cerulean, Blackburnian, Black-throated Blue and Green Warblers, Wilson's and Hermit Thrushes, and the Rose-breasted Grosbeak, one may pluck, if he likes, Indian-pipe (*Monotropa uniflora*), sweet pine-sap (*Hypopitys hypopitys*), rattlesnake plantain (*Goodyera pubescens*), purple and green habenarias, or three orchids blooming simultaneously (*Cypripedium acaule*, *pubescens*, and *parviflorum*).

As to the following list of birds, I wish to bespeak reliability for it. All of the species mentioned, excepting fifteen, can be seen in my collections of either mounted specimens or skins or in both, and about half of those fifteen species I saw in the flesh in someone else's possession. I have seen a few more species than those mentioned, but since I could not take them and they must be considered rare or accidental visitants here, I did not include them in the list. A few species I mention on the authority of others, but they are such as undoubtedly occur here and every sportsman knows, but there being some room for doubt, I have marked them as uncertain.

Of literature on the birds of this region, I know of two sources

only, one being: 'A List of the Birds of Maryland,' etc., by F. C. Kirkwood, Baltimore, Md., 1895, which, however, contains but little available material for this section, since Mr. Kirkwood spent only a few days here, June 5-14, 1895, and had no correspondent here. Then there is the excellent treatise by C. Hart Merriam and Edward A. Preble of the Biological Survey, U. S. Department of Agriculture, of whom the latter was detailed to work over this section for the Maryland Geological Survey. He spent some weeks here in May, June, and July, 1899, and that he worked very thoroughly is attested by his fine list of 100 species, which, however, he had to call 'Summer Birds,' on account of the season of the year, in which his stay here fell.

The dates I have given under the several species are not the only ones I have for them, but merely characteristic or somewhat unusual ones.

PERMANENT RESIDENTS.

1. *Colinus virginianus*. BOB-WHITE.—Some years ago, I am told, this species was nearly or quite exterminated by severe and adverse winter conditions, whereupon local sportsmen imported and liberated about 100 pairs, and now they are plentiful again at most points.

2. *Bonasa umbellus*. RUFFED GROUSE.—Still common in spite of the persistent hunting. I encountered many families this spring (1903) on the wooded ridges and hillsides, whereas in Pennsylvania I rarely flush one. The farmers there ascribe this to the fact, that no bounty is paid any longer for foxes, etc., which is done this side of the Mason and Dixon line.

3. *Meleagris gallopavo silvestris*. WILD TURKEY.—Well able to keep his own on the long, densely-wooded and sometimes almost inaccessible ridges. Many are sold in the local market in winter.

4. *Buteo platypterus*. BROAD-WINGED HAWK.—Not common.

5. *Syrnium varium*. BARRED OWL.—Seems to be about as common as the next species. Occasionally one is shot in the city.

6. *Megascops asio*. SCREECH OWL.—Not as common as in other States, since there is a bounty paid here for all hawks and owls, still it is not scarce. Both color phases occur.

7. *Bubo virginianus*. GREAT HORNED OWL.—Common over the whole territory. They are often caught in traps by farmers and brought alive to the city.

8. *Dryobates villosus*. HAIRY WOODPECKER.—Abundant in migration, rather rare otherwise.

9. *Dryobates pubescens medianus*. DOWNTY WOODPECKER.—Very abundant some days during migration (Oct. 24, 1900), otherwise about as rare or common as the preceding species.

10. *Ceophleus pileatus*. PILEATED WOODPECKER.—Rare, except in some of the higher parts. Locally called Indian Hen and sold as a game bird in Cumberland. April 19, 1903, I watched a pair for a long while at Accident. They were feeding on the ground and often hopped or flew against a stump or decayed tree as though hiding there what they found. Took one August 1, 1901, at the same place.

11. *Otocoris alpestris praticola*. PRAIRIE HORNED LARK.—Many flocks on hills and roads about Cumberland in winter, often together with Tree Sparrows, Juncos, etc. Breeds in the higher parts.

12. *Cyanocitta cristata*. BLUE JAY.—Common in the higher parts all the year, scarce during summer in lower parts.

13. *Corvus corax principalis*. RAVEN.—A colony of about twenty-five pairs nest in the cliffs at Rocky Gap, six miles east of Cumberland. Mr. Preble notes a pair nesting in a large hemlock near Finzel, Garrett County, May 15, 1903; saw a pair chasing each other on Will's Mountain, giving vent to notes like the loud howling, whining and barking of a large dog, sounds I would not have expected from any bird. Saw the same pair often.

14. *Corvus americanus*. CROW.—Very abundant; form large colonies in winter, which roost at certain places for weeks, on the wooded hillsides near the city.

15. *Astragalinus tristis*. GOLDFINCH.—In large flocks all the year except July and August, when they are in pairs.

16. *Junco hyemalis carolinensis*. CAROLINA SNOWBIRD.—Breeds in numbers in the highest parts of Garrett County; in winter seen in lower parts also.

17. *Melospiza cinerea melodia*. SONG SPARROW.—Very abundant at all times. Seem to winter also in higher parts.

18. *Cardinalis cardinalis*. CARDINAL.—Very abundant in lower parts, a few also in higher. In winter they are in flocks about Cumberland, and in places are as plentiful as Juncos.

19. *Thryothorus ludovicianus*. CAROLINA WREN.—This cheerful whistler can be heard along large and small water courses any day of the year, cold or warm, rain or shine. Common in lower parts only.

20. *Sitta carolinensis*. WHITE-BREASTED NUTHATCH.—Abundant in winter in lower parts, scarcer in the higher; in summer the opposite is true.

21. *Sitta canadensis*. RED-BREASTED NUTHATCH.—Not common during winter in lower parts. "A small flock of these birds, evidently a family, was seen on the branches of a tall dead tree, in the deep woods near Bittinger. It was also seen near Finzel about the middle of May, where it was doubtless breeding." (Preble.) On account of this record I give it as permanent resident.

22. *Baeolophus bicolor*. TUFTED TITMOUSE.—Common at all times and over the whole territory.

23. *Parus atricapillus*. CHICKADEE.—Equally abundant in both counties, summer and winter. Many seem to approach *P. carolinensis*, but all my skins were pronounced *P. atricapillus* by Mr. Ridgway.

24. *Parus carolinensis*. CAROLINA CHICKADEE.—Mr. Kirkwood says: "On Dan's Mountain, June 6, '95, young were in the nest of the only pair seen."

25. *Sialia sialis*. BLUEBIRD.—An abundant summer resident over the whole area, and in the lower parts, at least around Cumberland, many brave the inclemencies of the generally not very harsh winter. They may be seen any bright day in January or February, even if rather cold, in most of the small sheltered valleys about the city. Oct. 24, 1900, hundreds were in the clearing adjoining Allegany Grove.

IRREGULARLY OR NEARLY PERMANENT RESIDENTS, OR OF UNCERTAIN STATUS.

26. *Gallinago delicata*. WILSON'S SNIPE.—Abundant during migration and apparently must sometimes breed. I have dates from April 10 (1901) to May 21 (1903), and Mr. Kirkwood gives them for Cumberland from Feb. 28 to June.

27. *Zenaidura macroura*. MOURNING DOVE.—Common in both counties. March 15 to Dec. 6, on which latter date a flock of about 30 was seen in a field.

28. *Accipiter velox*. SHARP-SHINNED HAWK.—The most common of the hawks, probably because it is able to escape the hawk-hunters, that shoot hawks and owls to secure the 50 cents bounty foolishly paid in Allegany County for each hawk and owl. Breeds in the hills of Cumberland; took two full-grown young Aug. 3, 1900.

29. *Buteo borealis*. RED-TAILED HAWK.—In spite of the bounty act, it may be heard or seen now and then. Many are caught in traps put up by farmers on poles, of both this and the next species.

30. *Buteo lineatus*. RED-SHOULDERED HAWK.—Rarer than preceding species, but may be met with over the whole territory. Dates: Jan. 27, Feb. 17, 1900; July 1, 1901; May 8, 1902. Mr. Preble noted a noisy pair near Finzel, and others near Grantsville and Bittinger, all in Garrett County.

31. *Falco sparverius*. SPARROW HAWK.—Not common in lower parts, common in higher; I observed several families near Accident each summer. Abundant during migration at Cumberland. I have two winter dates: Dec. 23, 1899, and a male taken at Lonaconing Feb. 15, 1902.

I suppose the preceding four species should be classed as permanent residents, but since I have no winter dates for them, excepting the last two, I thought it safer to place them here.

32. *Nyctala acadica*. SAW-WHET OWL.—The only record I have for this is July 6, 1903, when a full-grown young one in good condition and plumage was brought to me alive. It had been caught in a tree in the city.

33. *Carpodacus purpureus*. PURPLE FINCH.—I do not know whether to class this as a migrant, a permanent resident, or a winter resident, as witness the following dates: Nov. 11, 1899; Feb. 10, 1900 (big flock); Feb. 24, 1900; Mar. 11, 1900; April 24, 1900; Nov. 23, 1901; Dec. 6, 1901; Jan. 15, 1902; Feb. 15, 1902; May 6, 1902; April 6 and 11, 1903; and on July 27, 1903, while in an alder swamp along Bear Creek, near Accident, a fine male flew into the top of an alder bush before me, and looked and acted as though he was fully at home there and thought I had no business intruding. To make the identification sure I took him.

34. *Certhia familiaris americana*. BROWN CREEPER.—I would class this as a winter resident, having dates from Oct. 19 (1902) to April 28 (1900), were it not for the fact that Mr. Preble took a female in heavy hemlock woods near Bittinger, Garrett County, on June 28, 1899. This renders its status doubtful.

35. *Regulus satrapa*. GOLDEN-CROWNED KINGLET.—The dates I have for this species also makes its status doubtful. Some of these dates are: Jan. 15 and 27 (1902, 1900); Feb. 15 (1902); April 7 and 12 (1900, 1902); May 1 (1901); May 23 (1903). This last specimen was seen and taken at Cumberland, in full song. Aug. 7 (1901); Oct. 5, 19, 27 (1900, 1901); Nov. 16 (1901); Dec. 6 (1902), etc.

36. *Merula migratoria*. ROBIN.—Large flocks of this bird stay late into November and return end of February. A few stay all winter in favored localities.

SUMMER RESIDENTS.

37. *Aix sponsa*. WOOD DUCK.—A scarce breeder but a common migrant. March 18 to April 8, 1901; Sept. 5, 1901, etc.

38. *Botaurus lentiginosus*. AMERICAN BITTERN.—Not common. March 30 (1901) to Sep. 16 (1899). June 30, 1902, a full-grown one was brought to me.

39. *Ardetta exilis*. LEAST BITTERN.—Rare; two dates only—May 30, and Aug. 26, 1901.

40. *Ardea herodias*. BLUE HERON.—A somewhat familiar figure along the creeks; scarce in the higher parts.

41. *Butorides virescens*. GREEN HERON.—Not rare, at least in lower parts.

42. *Philohela minor*. WOODCOCK.—Common resident over both counties. It stays so late and comes so early, that it may almost be counted a permanent resident.

43. *Bartramia longicauda*. BARTRAMIAN SANDPIPER.—Common in

migration, not so common as a breeder, perhaps on account of the lack of large meadows. Found a pair at Vale Summit (alt. 2000 ft.) on May 30, 1902; May 21, 1903, I found nine or ten pairs at the so called Swamp Ponds, on the other side of the Potomac River, and the same number July 13, the young having undoubtedly been drowned or killed by the heavy rains of this season.

44. *Actitis macularia*. SPOTTED SANDPIPER.—Abundant over the whole region, at all large and small watercourses, ponds and waterholes.

45. *Oxyechus vociferus*. KILLDEER.—Common in both high and low parts. Stays late and comes early, like the Woodcock. About October 1 they come to town in numbers and stay along Will's Creek until Nov. 22 (1902).

46. *Cathartes aura*. TURKEY BUZZARD.—Cannot be called common, nor rare. A pair evidently nests each year on Will's Mountain, near Cumberland, and several pairs at Rocky Gap, with the Ravens.

47. *Accipiter cooperi*. COOPER'S HAWK.—Rather scarce. A young one, full grown, was brought to me at Accident July 22, 1903, and Mr. Preble notes one near Swanton.

48. *Coccyzus americanus*. YELLOW-BILLED CUCKOO.—Not rare in both counties.

49. *Coccyzus erythrophthalmus*. BLACK-BILLED CUCKOO.—In lower parts during migration only, and then not common. Breeds in higher parts.

50. *Ceryle alcyon*. KINGFISHER.—Common in all parts. Dates: Mar. 25 (1902) to Sept. 28 (1901). On Aug. 26, 1901, one was killed by flying against a telegraph wire in the city.

51. *Sphyrapicus varius*. YELLOW-BELLIED SAPSUCKER.—Not uncommon, notably in higher parts. Dates: April 6 (1903) to Oct. 24 (1900). On April 20, 1903, the woods were full of them at Accident.

52. *Melanerpes erythrocephalus*. RED-HEADED WOODPECKER.—Has become rather rare in the lower parts, although a pair breeds here and there, but very abundant in the higher parts, where there are many 'dead-enings.' Dates: April 17 (1903, Accident) to Sept. 15 (1899).

53. *Colaptes auratus*. FLICKER.—Common over the whole area; especially abundant in higher parts and during migration, when the black gum and other trees entice him to stay long and in large numbers. Dates: Mar. 1 (1902) to Nov. 15 (1902). Its numbers are increasing around Cumberland.

54. *Antrostomus vociferus*. WHIP-POOR-WILL.—Evenly distributed over the whole territory; plentiful in some parts. Dates: April 21 (1902) to Sept. 14 (1899).

55. *Chordeiles virginianus*. NIGHTHAWK.—Not as common as last species, except during the last week in August, when they appear in large numbers, flying over the house-tops after insect food. Dates: May 3 (1902) to Sept. 2 (1903).

56. *Chaetura pelagica*. CHIMNEY SWIFT.—Common breeder over

the whole region. They can be seen in vast numbers over Centre Street Public School, darting out of and into the capacious chimney. Dates: April 16 (1901) to Aug. 27 (1903).

57. *Trochilus columbris*. RUBY-THROATED HUMMINGBIRD.—Common over the whole area.

58. *Tyrannus tyrannus*. KINGBIRD.—Not common at Cumberland, plentiful in the higher parts.

59. *Myiarchus crinitus*. GREAT CRESTED FLYCATCHER.—Not common, except locally.

60. *Sayornis phoebe*. PHOEBE.—Common in all parts, from Mar. 11 (1902) to Oct. 19 (1902).

61. *Contopus virens*. WOOD PEWEE.—Common. May 3 (1902) to Oct. 19 (1901).

62. *Empidonax alnorum*. ALDER FLYCATCHER.—Although I have looked high and low for this species in the alder-swamps, for hours at a time, I have not had the good fortune to see it, at least well enough to positively identify it. But Mr. Preble saw it and took it in the same and similar localities, June 3 and 4, 1899.

63. *Empidonax minimus*. LEAST FLYCATCHER.—Common as a migrant, but much rarer as a breeder, in both the low and high parts. Dates: April 30 (1903) to Sept. 14 (1899).

64. *Corvus ossifragus*. FISH CROW.—I saw what I took to be a pair of this species March 21 and May 21, 1903. Am familiar with their appearance and note from several visits to Washington, where they are plentiful in the parks.

65. *Dolichonyx oryzivorus*. BOBOLINK.—More of a migrant than breeder. Saw five or six on May 21, 1903, and Mr. Preble found them at Grantsville, June 23, 1899; am also told that they breed, some years, in the large meadows near Frostburg, which is very probable.

66. *Molothrus ater*. COWBIRD.—Not very common, except in migration; Nov. 3, 1901, thousands of this species, together with Redwings and Grackles, covered the fields along Eavitts Creek. March 22 (1901) is the earliest date I have.

67. *Agelaius phoeniceus*. RED-WINGED BLACKBIRD.—Abundant in suitable places over whole area. March 14 is my earliest date.

68. *Sturnella magna*. MEADOWLARK.—Of uniform abundance over the whole area from Mar. 1 (1902) to Oct. 23 (1901). May 21, 1903, two nests with five eggs in each.

69. *Icterus spurius*. ORCHARD ORIOLE.—Not common except some days in spring migration. Nearly absent from the higher parts in summer.

70. *Icterus galbula*. BALTIMORE ORIOLE.—Common over the whole area. Earliest date, April 27, 1902.

71. *Quiscalus quiscula*. PURPLE GRACKLE.—Plentiful everywhere from March 14 (1903) to Nov. 3 (1901). All that I have taken seem to belong to this eastern species, none to the western.

72. *Poæcetes gramineus*. VESPER SPARROW.—Very common breeder in higher parts, from 2000 ft. up. In Cumberland they can be seen only in migration and now and then a stray one in summer.

73. *Coturniculus savannarum passerinus*. GRASSHOPPER SPARROW.—Very common, especially in the higher parts, from May 1 (1902) to Sept. 5 (1901), but most disappear before the end of August.

74. *Chondestes grammacus*. LARK SPARROW.—Know of only one colony, which I found July 23, 1901, four miles from Accident, Garrett County. This year (1903) I visited the same place, and after much searching found only one bird; there may have been more near by.

75. *Spizella socialis*. CHIPPING SPARROW.—Very abundant everywhere. Appears to be becoming also a bird of the woods, for I find nests in the middle of second growth woods. March 21 (1903) to Nov. 1 (1901).

76. *Spizella pusilla*. FIELD SPARROW.—Same as *S. socialis*. March 21 (1903) to Nov. 4 (1899). May 10, 1901, nest with five eggs on ground; May 21, 1902, nest, one foot high in laurel bush, with three young and one egg.

77. *Melospiza georgiana*. SWAMP SPARROW.—Not rare where conditions are favorable; Mar. 30 (1901) to Oct. 3 (1901).

78. *Pipilo erythrophthalmus*. TOWHEE; CHEWINK.—One of the most abundant birds here, especially in the thickets of scrub-oak, etc., with which large parts of the hills and mountains are covered. In September and October hundreds, if not thousands, are to be seen. Dates: April 22 (1900) to Oct. 28 (1899).

79. *Zamelodia ludoviciana*. RED-BREASTED GROSBEAK.—Rare in lower parts, even in migration; rather common breeder on higher ground, from 2000 feet up.

80. *Cyanospiza cyanea*. INDIGO BUNTING.—Common, more so in lower than higher parts, from beginning of May till Oct. 15 (1902). In fall they associate in flocks with the Song Sparrows in the bushes along rivers and creeks.

81. *Piranga erythromelas*. SCARLET TANAGER.—Common, especially on wooded tops of mountains. May 1 (1903) to Sept. 27 (1902).

82. *Piranga rubra*. SUMMER TANAGER.—Saw and heard this fine whistler only once, July 1, 1901.

83. *Progne subis*. PURPLE MARTIN.—Common over the whole area, often in middle of cities, where martin-houses are put up. April 2 to Aug. 27, 1903. Usually, however, they come a few days later and depart several days earlier than this year.

84. *Petrochelidon lunifrons*. CLIFF SWALLOW.—Common wherever it can build its nest.

85. *Hirundo erythrogaster*. BARN SWALLOW.—Like the last species, abundant, especially in farming districts. April 12 (1901) to Aug. 14 (1903), at which latter date hundreds of this and the preceding and following species were assembled in the bushes on a small island in the lake at Mt. Lake Park, Garrett County, evidently preparatory to going south.

86. *Riparia riparia*. BANK SWALLOW.—Not as common as the preceding species.

87. *Stelgidopteryx serripennis*. ROUGH-WINGED SWALLOW.—More common than the Bank Swallow, but not as common as the Barn Swallow.

88. *Ampelis cedrorum*. CEDARBIRD.—Very abundant over the whole area. Mar. 24 (1900) to Oct. 19 (1901-'02), at which latter dates the woods were full of old and young. Its numbers seem to be increasing from year to year.

89. *Vireo olivaceus*. RED-EYED VIREO.—One of the commonest summer birds. May 2 (1902) to Sept. 4 (1901).

90. *Vireo gilvus*. WARBLING VIREO.—Not common. Earliest date, April 26, 1902.

91. *Vireo flavifrons*. YELLOW-THROATED VIREO.—Not common, except in migration. May 30, 1902, nest, fifteen feet up in a small oak, female sitting.

92. *Vireo solitarius*. BLUE-HEADED VIREO.—While I have found this species only as a migrant (May 8, 1902, many; May 15, 1902; Oct. 12, 1901; Oct. 19, 1902), Mr. Preble has found it a rather common resident at Finzel, Grantsville, Bittinger, Kearney, Swanton, and Dan's Mountain. This was in June, 1899; so there can be no doubt that it is a breeder in the higher parts.

93. *Mniotilla varia*. BLACK AND WHITE WARBLER.—Common at all points. May 1 to Sept. 22 (1900).

94. *Helmitherus vermivorus*. WORM-EATING WARBLER.—To be found in proper locations in both counties. May 8 (1902) to Sept. 20 (1900).

95. *Helminthophila chrysopera*. GOLDEN-WINGED WARBLER.—An abundant migrant and becoming a common breeder, also in lower parts. During migration (from May 2 on) they prefer to sit on dead saplings to utter their monotonous *tsee, tsee, tsee*. Quite a number bred this year on Will's Mountain, Cumberland, where I saw old and young out of nest on June 19; also at Frostburg, July 17. It frequents the same places as the Towhee.

96. *Compsothlypis americana*. PARULA WARBLER.—Rare as a breeder and migrant.

97. *Dendroica aestiva*. YELLOW WARBLER.—Abundant as a migrant, not so abundant as a breeder in low parts and still less in high parts. Still it cannot be called rare anywhere. In Cumberland they seem to disappear about the end of July. April 23 (1902) to July 31 (1902).

98. *Dendroica caerulescens*. BLACK-THROATED BLUE WARBLER.—Abundant migrant, notably in fall. In spring it, together with its companion, *D. virens*, seems to skip the lower parts and fly directly to high ground. There it is a very abundant breeder and its note, *dill, dill, dill, tree*, rapid and ascending, is heard into August. Other notes are: a shrill *tssee, tssee*; and *dēē dērēē dt*. Dates: May 16 (1903) to Sept. 28 (1901).

99. *Dendroica maculosa*. MAGNOLIA WARBLER.—Fairly numerous migrant and breeder; the latter in high parts only. May 18 (1901) to Oct. 19 (1902). Song: *irrēē dērēē! dt*, not so loud as that of *D. cārulescens*.

100. *Dendroica rara*. CERULEAN WARBLER.—Of about the same frequency as the preceding species, only they are much more in evidence during the spring migration and breed as low as Cumberland. This species seems to be extending its breeding area. I found them numerous near here June 19, 1903, when their song — *rēē, rēē, rēēr* (last note high) — could be heard frequently. They seem to disappear, however, as soon as their young can fly away. Dates: May 2 (1902) to July 19 (1901, Accident).

101. *Dendroica pensylvanica*. CHESTNUT-SIDED WARBLER.—Seems to frequent the same places as the Golden-winged Warbler, but is much more common over the whole region, breeding from 2000 feet up. It stays in low thickets of oak, laurel, locust, etc. Dates: May 2 (1902) to Sept. 21 (1901).

102. *Dendroica blackburniae*. BLACKBURNIAN WARBLER.—Common migrant and breeder in higher parts; fall migration seems to be chiefly of birds of the year. May 3 (1902) to Sept. 24 (1900).

103. *Dendroica virens*. BLACK-THROATED GREEN WARBLER.—This apparently inseparable companion of *D. cārulescens* is generally to be seen in the same places and numbers and at the same time as that species, only it frequents the trees rather than underbrush. April 20, 1903, I saw and heard it on Negro Mountain, near Accident, where there was yet no sign of opening vegetation, whereas here at Cumberland, I saw none till May. My latest date for it is Oct. 19.

104. *Dendroica vigorsii*. PINE WARBLER.—Very common in migration, especially the young in fall. It nests very sparingly. Dates: March 20 (1903) to Oct. 19 (1900).

105. *Dendroica discolor*. PRAIRIE WARBLER.—Common breeder in low land, not in high. Its queer note can be heard from May 2; after the end of June it is no longer in evidence.

106. *Seiurus aurocapillus*. OVENBIRD.—One of the most common birds in low parts; not nearly so common in higher parts. May 1 (1900) to Sept. 29 (1899).

107. *Seiurus noveboracensis*. WATER-THRUSH.—I have so far found only one in migration (May 16, 1903) and one in its breeding places in high ground (July 17, 1903), but Mr. Preble reports it fairly common about Finzel, June, 1899, when every stream had a pair or two.

108. *Seiurus motacilla*. LOUISIANA WATER-THRUSH.—Rather common throughout the range; more so in the Carolinian parts of it. April 7 (1900) to July 30 (1902). After the end of July they are not to be seen.

109. *Geothlypis trichas*. MARYLAND YELLOW-THROAT.—Perhaps the most abundant warbler here, even in the high alder and sphagnum swamps. April 26 to Sept 12 (1902).

110. *Icteria virens*. YELLOW-BREASTED CHAT.—Common in scrubby

underbrush over the whole area, but more common in lower than higher parts. The earliest date I have is May 2 (1902).

111. *Wilsonia mitrata*. HOODED WARBLER.—Rather common over the whole area, but more so in the lower parts. Its penetrating song—*pea'ry, pea'ry pie'ah*, or sharp call-note, *tsink*—can be heard on most hillsides about Cumberland. Dates: May 2 (1902) to Aug. 14 (1901), at which latter date I saw a full family.

112. *Wilsonia canadensis*. CANADIAN WARBLER.—Common migrant, and more common breeder in high parts. It seems to be fond of rhododendron thickets. They arrive at Cumberland about May 8.

113. *Setophaga ruticilla*. REDSTART.—Common throughout the region, locally abundant. May 1 (1900) to Sept. 20 (1902).

114. *Galeoscoptes carolinensis*. CATBIRD.—Abundant throughout, even in high alder-swamps. April 28 (1900) to Sept. 29 (1900).

115. *Toxostoma rufum*. BROWN THRASHER.—Almost as common as the preceding. April 19 (1902) to Oct. 12 (1901). April 18, 1903, there were some at Accident, although there were none at Cumberland till several days later.

116. *Thryomanes bewickii*.—BEWICK'S WREN.—Common in the whole section. Mar. 12 (1901) to Oct. 19 (1902).

117. *Troglodytes aëdon*. HOUSE WREN.—Common throughout the section. Arrives beginning of May; latest date I have is Oct. 19 (1902).

118. *Polioptila caerulea*. BLUE-GRAY GNAT-CATCHER.—Strange to say, this species is very rare here; I have two dates only: May 27, 1900, and May 18, 1901.

119. *Hylocichla mustelina*. WOOD THRUSH.—Very common over the whole section. May 1 (1900) to Sept. 3 (1901).

120. *Hylocichla fuscescens*. WILSON'S THRUSH.—While this species breeds plentifully at Frostburg, 11 miles from here, I have never yet been able to see or take it here in migration. May 23, and June 16, 1903, there were many in full song on Savage Mt., near Finzel.

121. *Hylocichla guttata pallasii*. HERMIT THRUSH.—Have been able to see this only once in migration here at Cumberland, whereas they are common in high ground. April 20, 1903, I saw about a hundred on Negro Mountain but not one here, before or after that date. The latest date is Oct. 19, 1902.

MIGRANTS.

122. *Podilymbus podiceps*. PIED-BILLED GREBE.—Common in migration even in the city, on Will's Creek, where two were caught alive, Oct. 8, 1901. Dates: Mar. 18 (1901) to April 20 (1903, Accident) and Sept. 18 (1900) to Oct. 8 (1901).

123. *Merganser serrator*. RED-BREASTED MERGANSER.—Have only one date for this, Dec. 23, 1901.

124. *Lophodytes cucullatus*. HOODED MEGANSER.—Rare. A female specimen was shot on the Potomac, March 16, 1901.

125. *Anas boschas*. MALLARD.—This can be seen now and then all winter, so that it may perhaps be classed as a winter resident. Nov. 11 (1902) to May 23 (1901). May 13, 1901, a big flock was on the Potomac.

126. *Anas obscura*. BLACK DUCK.—This is seen mostly with the Mallard, same places and times. April 24, 1903, there was a big flock on the Potomac. Jan. 17, 1903, I watched five at a distance of ten feet feeding in a hole in the ice near the bank.

127. *Mareca americana*. BALDPATE.—Scarce; only one date, April 8, 1901.

128. *Querquedula discors*. BLUE-WINGED TEAL.—Plentiful in April; have no dates for fall migration.

129. *Dafila acuta*. PINTAIL.—One is shot now and then. Got a male March 21, 1902.

130. *Aythya marila*. AMERICAN SCAUP DUCK.—Plentiful in spring migration, April 8 to May 24 (1901). May 13, 1901, about thirty were swimming on the Potomac, and May 22 a fine one was seen all day within the city limits.

131. *Aythya affinis*. LESSER SCAUP DUCK.—Rare. April 8, 1901.

132. ? *Clangula clangula americana*. GOLDEN-EYE.—Hunters tell me that they take this species now and then, which is very probable. I think all species of ducks that frequent Chesapeake Bay come here occasionally, if not regularly.

133. *Charitonetta albeola*. BUFFLEHEAD.—Rather common migrant. Dec. 19, 1901, one killed itself by flying against a telegraph pole in the city. April 8, 1901 and 1902; March 21, 1902.

134. *Harelda hyemalis*. OLD-SQUAW.—Rare. Dec. 19, 1900, one was brought to me that had been killed with a stone on Eavitt's Creek.

135. *Branta canadensis*. CANADA GOOSE.—Common in spring migration.

136. *Porzana carolina*. SORA.—May 23 and 30, 1901, I found very many at the "Swamp Ponds," but they were not there in summer. Are here again Sept. 5 (1901) to Oct. 3 (1901).

137. *Totanus flavipes*. YELLOW-LEGS.—Not rare during migration.

138. *Helodromas solitarius*. SOLITARY SANDPIPER.—This species, locally called Black Snipe, is shot much during migration. I am almost certain, however, that it breeds in the high parts, since I saw a pair of what I took to be this species July 25, 1903, at Friendsville, Garrett Co. At Cumberland I have taken it as late as May 23 (1901), and again Aug. 31 (1901).

139. *Empidonax acadicus*. ACADIAN FLYCATCHER.—Seems to be a rare migrant in lower parts. I have only one date, Sept. 3, 1901. It may also be a rare breeder, since Mr. Preble saw one at Oldtown in June.

140. *Scoleocophagus carolinus*. RUSTY BLACKBIRD.—A migrant that I have never found common. Spring dates: April 11, (1903) to April 26 (1901); fall: Nov. 22 and 23, (1901); snow on last date.

141. *Zonotrichia leucophrys*. WHITE-CROWNED SPARROW.—A rather rare migrant. These are all the dates I have for Cumberland: April 26, 1901, two pairs; May 2 and 7, 1902; May 4 and 13, 1903; and Oct. 12, 1901. No records for the higher sections.

142. *Zonotrichia albicollis*.—WHITE-THROATED SPARROW.—Common Mar. 21 (1903) to May 2 (1900), and Sept. 25 (1900) to Oct. 25 (1902).

143. *Melospiza lincolni*. LINCOLN'S SPARROW.—Rare migrant; I took one Oct. 19, 1900.

144. *Passerella iliaca*. FOX SPARROW.—Not as common as *Z. albicollis*, yet by no means rare. March 14 (1901) to April 6 (1903), and Oct. 27 (1900) to Nov. 4 (1900).

145. *Vireo philadelphicus*. PHILADELPHIA VIREO.—Very rare; took one May 8, 1901, when there was a big bird wave on Will's Mountain, Cumberland.

146. *Helminthophila ruficapilla*. NASHVILLE WARBLER.—I saw none of this species until May 3, 1902, when Will's Mountain was full of them.

147. *Helminthophila peregrina*. TENNESSEE WARBLER.—The only date I have for this rare species is May 6, 1901, when Mr. V. Laney took one for me.

148. *Dendroica tigrina*. CAPE MAY WARBLER.—Numerous in fall migration. Sept. 21 (1900) to Oct. 27 (1900), mostly young. May 21, 1902, is the only spring date I have.

149. *Dendroica coronata*. MYRTLE WARBLER.—Scarce; have two dates only: May 5, 1900, and Oct. 25, 1900.

150. *Dendroica castanea*. BAY-BREASTED WARBLER.—Rare; saw one May 8, 1902, and another May 17, 1902.

151. *Dendroica striata*. BLACK-POLL WARBLER.—Plentiful on certain days during migration. It is a late comer in spring; May 16, 1903, and May 18, 1901, the woods were full of them. In fall, Oct. 2, to Oct. 19; only young ones seem to come through here. This year (1903) some lingered at Cumberland till May 21.

152. *Dendroica palmarum*. PALM WARBLER.—Very rare; saw and took one only, May 3, 1902.

153. *Geothlypis formosa*. KENTUCKY WARBLER.—Very rare here, while it was a common breeder at my former home near Pittsburg, Pa. Have two dates only, Sept. 22 and 29, 1899.

154. *Wilsonia pusilla*. WILSON'S WARBLER.—Rather scarce. Sept. 4 (1901) to Sept. 21 (1900). No spring dates.

155. *Regulus calendula*. RUBY-CROWNED KINGLET.—I believe this comes near to being a winter resident, if it not actually is one. Kinglets may be seen all winter, mostly *R. satrapa* to be sure, but undoubtedly there are some of this species with them. Oct. 19 (1900) to May 3 (1902).

156. *Hylocichla aliciae*. GRAY-CHECKED THRUSH.—Rare. Sept. 15 (1902) to Oct. 6 (1900). No spring dates.

157. *Hylocichla ustulatus swainsonii*. OLIVE-BACKED THRUSH.—Common only in fall migration. Sept. 9 (1901) to Oct. 6 (1900). It is then colored red inside and outside with the juice of the pokeberry.

WINTER RESIDENTS.

158. *Gavia imber*. LOON.—A few stay around here all winter, if the river is not frozen over, which is not often. April 10, 1901, an extraordinarily large one was taken; it measured 39 in. from tip of bill to end of toe, 34 in. from bill to end of tail. April 9, 1902, one was swimming on the Potomac within the city limits, above the dam for the Chesapeake and Ohio canal, enjoying himself dodging bullets and stones of foolish people.

159. *Merganser americanus*. AMERICAN MEGANSER.—Can be seen throughout the winter, if the river is not frozen over. Dates I have extend from Feb. 7 (1903) to April 8 (1902).

160. *Spizella monticola*. TREE SPARROW.—Common from Nov. 16 (1901) to April 12 (1902).

161. *Junco hyemalis*. SNOWBIRD; JUNCO.—Very abundant, Oct. 12 (1901) to April 21 (1903). Dec. 14, 1900 and April 17, 1903, also common at Accident.

162. *Troglodytes hiemalis*.—WINTER WREN.—Not common. Sept. 21 (1901) to April 8 (1901).

This looks like a small list of winter residents, but when the permanent and occasionally permanent residents are added to it, it becomes plain that bird life is not at all rare here in winter, at least around Cumberland.

ACCIDENTAL AND ERRATIC VISITANTS.

163. *Gavia lumme*. RED-THROATED LOON.—On Dec. 19, 1900, one was brought to town and kept in a box in front of a store for some days, that had landed on the ground and been unable to take wing again.

164. *Larus argentatus*. HERRING GULL.—One or more are seen now and then after hard storms. On April 21, 1901, e. g., about six were flying over the river with about fifty of the next species.

165. *Larus philadelphia*. BONAPARTE'S GULL.—Seen now and then after storms, as, e. g., April 21-24, 1901; at the same time a pair were taken at Accident on a little fish pond. April 8, 1902, 25-30 were over the Swamp Ponds.

166. *Hydrochelidon nigra surinamensis*. BLACK TERN.—Observed only one so far, May 30, 1901.

167. ? *Nettion carolinense*. GREEN-WINGED TEAL.—Mr. McKee of Cumberland tells me that he took one some years ago.

168. *Olor columbianus*. WHISTLING SWAN.—Saw the feet of several nailed against a building, that Mr. Goss had taken a year or two before. On Dec. 16, 1902, the papers reported that a swan measuring 6 ft. 10 in. from tip to tip, had been shot near Oakland, Garrett Co.

169. *Nycticorax nycticorax nævius*. BLACK-CROWNED NIGHT HERON.

— On May 5, 1901, Mr. Baker shot a young one of this species. This points to it being at least a rare summer resident.

170. *Fulica americana*. COOT.—April 25, 1903, a female was shot on Will's Creek, in the middle of the city (Cumberland).

171. *Phalaropus lobatus*. NORTHERN PHALAROPE.—May 23, 1901, Mr. V. Laney took one for me at the Swamp Ponds, and said he saw another one like it in its company.

172. ? *Ectopistes migratorius*. PASSENGER PIGEON.—This region was formerly one of its favorite haunts, there being an immense roost near Oakland, Garrett Co. Farmers and others that know them well from former times, tell me that they now see small flocks of from 2-12 occasionally. I think I saw five on Keyser's Ridge July 19, 1901, and a pair on Savage Mountain, July 17, 1903.

173. *Haliaeetus leucocephalus*. BALD EAGLE.—This is a not uncommon resident in the mountain fastnesses of West Virginia and occasionally one is seen and taken at or near Cumberland. On Sept. 17, 1902, a young one was captured alive while fighting with a Wild Turkey, on Knobley Mountain across the river.

174. *Pandion haliaetus carolinensis*. OSPREY.—Now and then seen over the river and fish ponds, e. g., April 22, 1901 and April 19, 1903.

175. *Nyctea nyctea*. SNOWY OWL.—One is seen or taken now and then by hunters. Mr. McKee shot one Nov. 25, 1901.

176. *Centurus carolinus*. RED-BELLIED WOODPECKER.—I have never seen this species here, but one was brought to me Dec. 29, 1900, that had been shot on Iron Mountain, this county. There were then said to be several more there.

177. *Loxia curvirostra minor*. AMERICAN CROSSBILL.—Saw five or six Feb. 5, 1902; took a pair out of about 25 Feb. 28, 1902; saw one in company of Snowbirds Jan. 17, 1903.

178. *Acanthis linaria*. REDPOLL. Observed a flock of eight at a distance of twenty feet through a glass Dec. 6, 1901 (Auk, XIX, p. 212).

179. *Passerina nivalis*. SNOWFLAKE.—Saw this species only on two days: Nov. 16, 1901, and Feb. 8, 1902 (Auk, XIX, p. 212).

180. *Lanius ludovicianus*. LOGGERHEAD SHRIKE.—Despite diligent searching for this species, in the kind of places I know it frequents in other localities, I have found it only once, March 30, 1901, at the Swamp Ponds.

THE OBLIGATIONS OF THE STUDENT OF ANIMAL BEHAVIOR.

BY WILLIAM MORTON WHEELER.

IT IS well known that every common or conspicuous animal, like every eminent human personage, is destined sooner or later to become the nucleus of a myth-nimbus. An innate love of the marvellous stirs our fancy to invest all creatures with extraordinary powers, till we learn, with Lessing, that "it is the greatest of miracles that the real miracles can and must become such every day occurrences." This nimbus of myth is not entirely the work of the ignorant and child-like observer. The savant himself, from the days of Aristotle and Pliny down to the present era of abounding 'nature-books,' has contributed not a little to the hero-worship of animals.

In view of these conditions, the student of any science of animal behavior or comparative psychology worthy of the name, has a two-fold duty to perform. This is both destructive and constructive; destructive, in so far as he is compelled to submit traditions concerning animals to searching and depurative criticism; constructive, in so far as he is obliged to rebuild our knowledge of animal behavior on the securer foundations of careful observation and experiment. Destructive criticism, especially of the thorough-going kind which seems to be provoked by the now fashionable methods of studying animal behavior, is not a very agreeable undertaking. The scientific critic, if he is noticed at all, will be described as 'technical,' 'dry-as-dust,' and 'colorless' by those who are incapable of appreciating the beauty and interest attaching to the simplest of Nature's activities, but feel compelled to create wonders, like the child who lies for the sake of producing an impression on the too stolid adults of his environment. A moment's reflection, however, will show that until all that has been claimed for the behavior of animals has been tried as by fire, till it has been passed through the hot alembic of scientific criticism and the metal of truth has been separated from the slag of fiction, it shall form no part of enduring knowledge.

Not less laborious than the destructive are the constructive

efforts of the comparative psychologist, involving as they necessarily must, the endless drudgery of observation and experiment to establish the simplest facts. The kind of training required in such work is not necessarily given by any term of years spent in camping in the American forests, nor in the arrogant conviction of surpassing one's fellow men in keenness of insight into the animal mind. No such conviction necessarily carries with it a grain of authority. There is no short-cut to a knowledge of animal behavior in the sense of a trajectory which o'er-leaps a humble and diligent apprenticeship in the methods of correct observation and reflection. In no science is it more true than in comparative psychology that "every man shall not go to Corinth."

There are a few simple considerations which the objective student of animal behavior must constantly bear in mind. A moment's reflection shows that all we can really perceive of animal behavior is certain movements of the creatures in time and space. As soon as we attempt to assign causes to these movements we at once pass into the province of pure inference. This, of course, holds good also of human actions, but in this case we are at least dealing with organisms essentially like ourselves in structure and development. All animals, however, differ more or less widely from man. They have neither the power of concealing nor of revealing their mental processes by means of speech, and, although their actions are, in a sense, frank and undisguised, and often resemble human actions which we have learned to associate with certain feelings, volitions and thoughts, we can never do more than infer a similar association in animals, since we are forever debarred from knowing what is actually taking place in the animal mind. It follows, therefore, that we can have no such thing as an animal psychology or science of animal behavior, unless we accept these inferences from analogy as a valid scientific method. Thus the science resolves itself into a critical treatment and testing of these inferences. And it is just here that the tendencies of the true and the false students of animal behavior diverge. The latter, consciously or unconsciously, construe the predicament of our inability to know what is going on in the animal mind, into a license for all kinds of fancies and a safeguard for unremitting malobservation.

The conscientious student, however, is not without a means of circumventing, so to speak, all these tactics of the pseudopsychologist. He can apply another principle within easy reach, namely "Occam's razor": "Complicated explanations are inadmissible when simpler ones will suffice." We are not, for example, to accept human reasoning as an explanation of any animal behavior, till simpler processes, like instinct and associative memory, have been tried and found wanting. At the present time all cool-headed students are unanimous in the opinion that animals show no evidences of being able to form abstract concepts, much less to construct judgments and draw conclusions from them after the manner of reasoning human beings. In so far as they are not instinctive those animal actions which are commonly attributed to reason may be completely or almost completely explained as the result of associative memory (association of ideas), or at most as an exercise of what has been called the "practical judgment." All of these processes, however, are much simpler than human ratiocination.¹

The fact that in man the reasoning powers are the latest to develop and, in cases of mental disease, the first to disintegrate, leaving nearly intact the emotional and volitional processes, indicates that the reason has been a late acquisition during the history of animal life. It may well be peculiarly human. And while it is

¹ Interesting treatment of this and many other subjects relating to animal behavior will be found in the following important works: C. Lloyd Morgan's 'Habit and Instinct' and 'Comparative Psychology'; W. Wundt's 'Lectures on the Human and Animal Mind'; L. T. Hobhouse's 'Mind in Evolution'; A. Forel's 'Psychic Powers of Ants, etc.' (translated in 'The Monist', 1903-1904); J. Loeb's 'Physiology of the Brain'; H. Driesch's 'Die Seele als elementarer Naturfaktor' (not yet translated); E. Wasmann's 'Instinct and Intelligence.' The works of Morgan, Wundt, Hobhouse and Forel deserve the first rank on account of their sanity and philosophical breadth of view. Loeb's work is remarkable on account of its original and destructive criticism. Driesch's work is noteworthy for its highly, not to say ultra-, objective method. Wasmann's work abounds in keen and instructive criticism of the humanizing school of animal psychologists. He is an advocate of the mediæval psychology of the church. Although his persistent efforts to crush the facts of modern psychology into the Procrustean bed of scholastic definition and terminology will certainly not meet with general approval, his above mentioned work as well as his numerous papers on the behavior of ants, etc., contain many valuable observations.

assuredly a matter of importance to determine whether rudiments of reason exist among animals, and to study this wonderful power in its incipient stages, it is equally true that the comparative psychologist may lay too much stress on the intellectualistic aspects of the animal mind. Of far greater importance is the study of those processes which lie at the very foundation of our own, as they do of the animal's mental constitution, namely, the feelings and the will, and their manifestations in instinct. Nor should it be forgotten that to reason is itself, in a sense, instinctive. It is probable, therefore, that the science of animal behavior will, in the future, lay less stress on the rationalistic side and more on the more profound and no less wonderful phenomena. To this great value of the study of instinct the philosopher Schelling bears witness when he says: "The phenomena of animal instinct are of the greatest importance to every thinking man — they are the true touch-stone of a genuine philosophy."

In view of the preceding statements, it is not surprising that the study of animal behavior has passed out of the anecdotal stage. This fact seems not to be realized by many of the authors of "nature-books" in this country. At the present time the animal anecdote is admissible only in works of art, like the fable, the animal epic or the animal idyll, or for the purposes of destructive criticism. In other words, its chief scientific use is negatively didactic, or for the purpose of illustrating how not to study and describe animal behavior.¹

The constructive work of the student of animal behavior is not completed with the accumulation of knowledge in conformity with true criteria. He may be expected to present the truths thus acquired in clear and attractive form for the purpose of encouraging others to continue the great work in this limitless field of observation and experiment. Few authors have been able to do

¹ Those who cannot repress a feeling of disappointment on learning that there is no evidence to show that animals can reason like themselves, may find consolation in the fact that the very naïveté of animals — their limitations and stupidity, humanly speaking — is a fact of great interest and beauty. Who will deny that the very absence of the reasoning and reflective powers enters very largely into our aesthetic appreciation of the actions of our domestic animals and of our own children?

this and avoid the pitfalls of malobservation on the one hand and those of poetic distortion on the other. Among the few may be mentioned Maurice Maeterlinck in his 'Life of the Bee' and Jules Fabre in the eight incomparable volumes of his 'Souvenirs Entomologiques.' Unfortunately only a single volume of the latter's work has been translated into English, and even the original is far too little known and appreciated. Those who are feeding the American public with false animal psychology done up in tinselled English interspersed with seductive half-tones, would do well to study the methods whereby the young Belgian mystic and the aged French observer contrive to satisfy the reader's æsthetic sense without departing from the truths of rigid observation and experiment. While it is not given to all to succeed like these, it is certainly possible for any one to repress a striving for æsthetic effect at the expense of truth.

UNPUBLISHED LETTERS OF JOHN JAMES AUDUBON AND SPENCER F. BAIRD.

BY RUTHVEN DEANE.

THE following correspondence between John James Audubon, at the age of sixty-two years, and Spencer F. Baird, a young man of nineteen years, cannot fail to be of interest to the readers of 'The Auk.' The letters are of peculiar interest, as they touch upon Audubon's proposed trip to the Missouri River and of Baird's great desire to accompany him, and show the deep interest and affection each held for the other, though there was a difference of forty-three years in their ages.

The original letter from Baird has come into my possession through the generosity of Miss M. R. Audubon, and I am under great obligation to Miss Lucy H. Baird for a copy of the original Audubon letter and recommendation, which she found among her father's correspondence.

BAIRD TO AUDUBON.

Washington, July 27, 1842.

My Dear Mr. Audubon.

After making several unsuccessful efforts to get a second sight of you day before yesterday, I was obliged to give up the attempt in despair. I went to the Capitol at half past twelve and wandered over the whole building, Library, Senate Chamber and House, without being able to see or hear anything of your excellency. In the evening as in the morning I was again at Fuller's¹ without avail, went up the street, listened a while to the Circus music, came back, you were in bed.

One thing I wanted to ask you about, was respecting your proposed trip next spring. In the first place the expense. The Pennsylvanians have been all so much affected by the derangements in the Currency of our state, stocks, banks, etc., that when in former years dollars were thrown away, cents are now carefully looked to. Nothing would delight me more than to go, if I can afford it. Next what preparation would I have to make to fit myself to accompany you. The journey ought to be a sort of "Humboldt & Bonpland" one, for the purpose of increasing the general sum of knowledge in every department of science, physical as well as natural. Will you please write and tell me all about the matter, route &c. If there is anything I can do for you here, do not hesitate to command me. It would require a good many drafts on me to wipe off the heavy load of obligation I am under to you for your kindness to me in New York, by sympathy and assistance in more ways than one. I have influential friends and relations here who, if occasion demands, may forward some of your views. By the by, a gentleman asked me yesterday several particulars about your proposed work, as to time of commencement, finishing and probable cost, intimating at the same time an intention of becoming a subscriber. Will you enable me to give him some information on the subject.

¹ The old City Hotel kept by A. Fuller and known as "Fuller's," situated at the northwest corner of Pennsylvania Avenue and Fourteenth St., where the Willard Hotel now stands.

I have spent my time since I have been here principally between the Treasury Building and the Patent Office. I have a strong desire to spend a few months among the collections of the Exploring Expedition,¹ with the privilege of overhauling the articles. This my uncle Mr. Penrose,² solicitor of the Treasury, says I will be enabled to do by being connected in some way with the corps to be employed under act of Congress the ensuing winter. He says that if I could get a note from *Mr. Audubon* intimating in general terms, that from his knowledge of my qualifications, I would make a competent assistant to those gentlemen already engaged, that there would not be much trouble about the matter. Will you do me the favor to write something or other to this effect which he may use for this purpose. A few lines from you will be of more avail with the Secretary of Navy, or State, than a whole folio would be from anybody else. Will you ask Major Le Conte to send me a few of those very fine steel pins, tightly packed up, directed to me in an enclosure to Chas. B. Penrose, Solicitor of the Treasury, Washington, D. C. With my best respects to Mrs. Audubon and all your family, I remain,

Yours sincerely,

Spencer F. Baird.

P. S. Please address anything to me under cover to Chas. B. Penrose.

AUDUBON TO BAIRD.

New York, July 30, 1842.

My Dear Young Friend,—

Your letter of the 27th Inst. reached me yesterday. I am truly vexed that I should have missed you at the Library or the Congress Chambers, where I went (perhaps too late) between 3

¹ United States Exploring Expedition, during the years 1838-42. Under command of Charles Wilkes, U. S. N.

² Charles B. Penrose of Pennsylvania, Solicitor of the Treasury from 1841 to 1845, appointed to office by President William H. Harrison.

and 4 o'clock of the afternoon, having been detained at the different Departments of State where it was my duty to call, preparatory to next coming Great Western Journey.

Now it proves by your letter that you feel favorably disposed to accompany me on this long-thought-of and contemplated Tour, and wish me to give you some idea of the expenses, attached to such an undertaking; but to this question I am quite unable to reply at present, although I may do so in a few weeks, and which I shall do, provided you write to me again on the subject.

I have no very particular desire to embark as deep in the Cause of Science as the great Humboldt has done, and that, simply because I am too poor in pecuniary means and too incompetent; but I wish nevertheless *to attempt* to open the Eyes of naturalists to *Riches untold*, and facts hitherto untold. The portions of the country through which it is my intention to pass, never having been trodden by white Man previously.

I have some very strong doubts whether the results of the Antarctic Expedition will be published for some time yet; for, alas, our Government has not the means, at present, of paying some *half a Million of Dollars* to produce publications such as they should publish, and connected with the vast stores of Information, collected by so many Scientific Men in no less than Four Years of Constant Toil and privation, and which ought to come to the World of Science at least as brightly as the brightest rays of the Orb of Day during the Midsummer Solstice. O, my dear young friend, that I did possess the wealth of the Emperor of Russia, or of the King of the French; then, indeed, I would address the Congress of our Country, ask of them to throw open these stores of Natural Curiosities, and to *Give away* Copies of the invaluable Works thus produced to every Scientific Institution throughout our Country and throughout the World.

As you however appear desirous to present my thoughts of your capabilities as one of the assistants in that Stupendous undertaking, I send you enclosed what I hope most sincerely may prove beneficial for such purposes.

Now as you have been kind enough to offer me your services at Washington, I ask you to call upon Mr. Cushing, M. P., of Massachusetts, and to ask him to have the goodness to forward

me the Letter promised me by the president of the U. S., for, as I have not yet had it, I somewhat fear that it has been missent.

Write to me at once, and believe me,

Your friend, John J. Audubon.

AUDUBON'S RECOMMENDATION OF BAIRD.

New York, July 30, 1842.

Knowing, as I do, Spencer F. Baird, Esq., as a Young Gentleman well qualified to assist in the arrangement, description, etc. of the specimens of Natural History brought home by the Exploring Expedition, and deposited in the National Institute at Washington City for the purpose of being published and thereby rendered useful to the world of Science; I take great pleasure in recommending him as a most worthy, intelligent, and industrious student of Nature, both in the field and in the museum, and I would feel great satisfaction in hearing that our Government had employed him in this national and important undertaking.

John J. Audubon.

NESTING HABITS OF THE HERODIONES IN FLORIDA.

BY A. C. BENT.

Plates XIX-XXI.

(Concluded from p. 29.)

Botaurus lentiginosus. AMERICAN BITTERN.

This species seems to be sparingly but generally distributed throughout the fresh water marshes of Florida, where it undoubtedly breeds. We did not find any of its nests but, as we spent very little time in suitable localities, this is not strange. We flushed a few American Bitterns from the saw-grass marshes on

the St. Johns River and from similar locations on Merritts Island. It probably nests in the saw-grass with its small relative, the Least Bittern, where its nest must be securely hidden.

In Monroe County, where there are practically no fresh water marshes south of the everglades, we failed to see an individual of either species of Bittern.

Ardetta exilis. LEAST BITTERN.

We found this little Bittern a common resident in all suitable localities — fresh water marshes — in Florida that we visited. It is so shy and retiring in its habits and so hard to flush that we undoubtedly overlooked it many times; if we had spent more time in exploring the saw-grass sloughs we should probably have found it very abundant. None of the birds that we saw seemed to be referable to Cory's Bittern.

We found nests containing fresh eggs in the St. Johns marshes on April 18 and 22 and on Merritts Island on April 26, 1902, four nests in all. The nests were all built in tall, thick tussocks of fine grass, higher than a man's head, growing in saw-grass sloughs. The nests were merely crude platforms of straws, measuring about 7 by 4 or 7 by 5 inches, well concealed in the centers of the tussocks and from 24 to 30 inches above the ground or water; they were exceedingly frail structures, barely able to hold the four bluish white eggs. Boat-tailed Grackles generally frequent the same localities as the Least Bitterns. In a small slough, about 30 yards square, on Merritts Island we found two nests of the Bitterns and five nests of the Grackles.

Ardea occidentalis. GREAT WHITE HERON.

Since the days of the illustrious Audubon very little has been written about this magnificent Heron, the grandest, the handsomest, and the shyest of its tribe. Its range within the United States is confined to the extreme southern coast of Florida and the mangrove keys, where it is really abundant and forms a striking feature in the landscape. It is no uncommon sight to see ten or twelve of these great birds standing in the shallow water

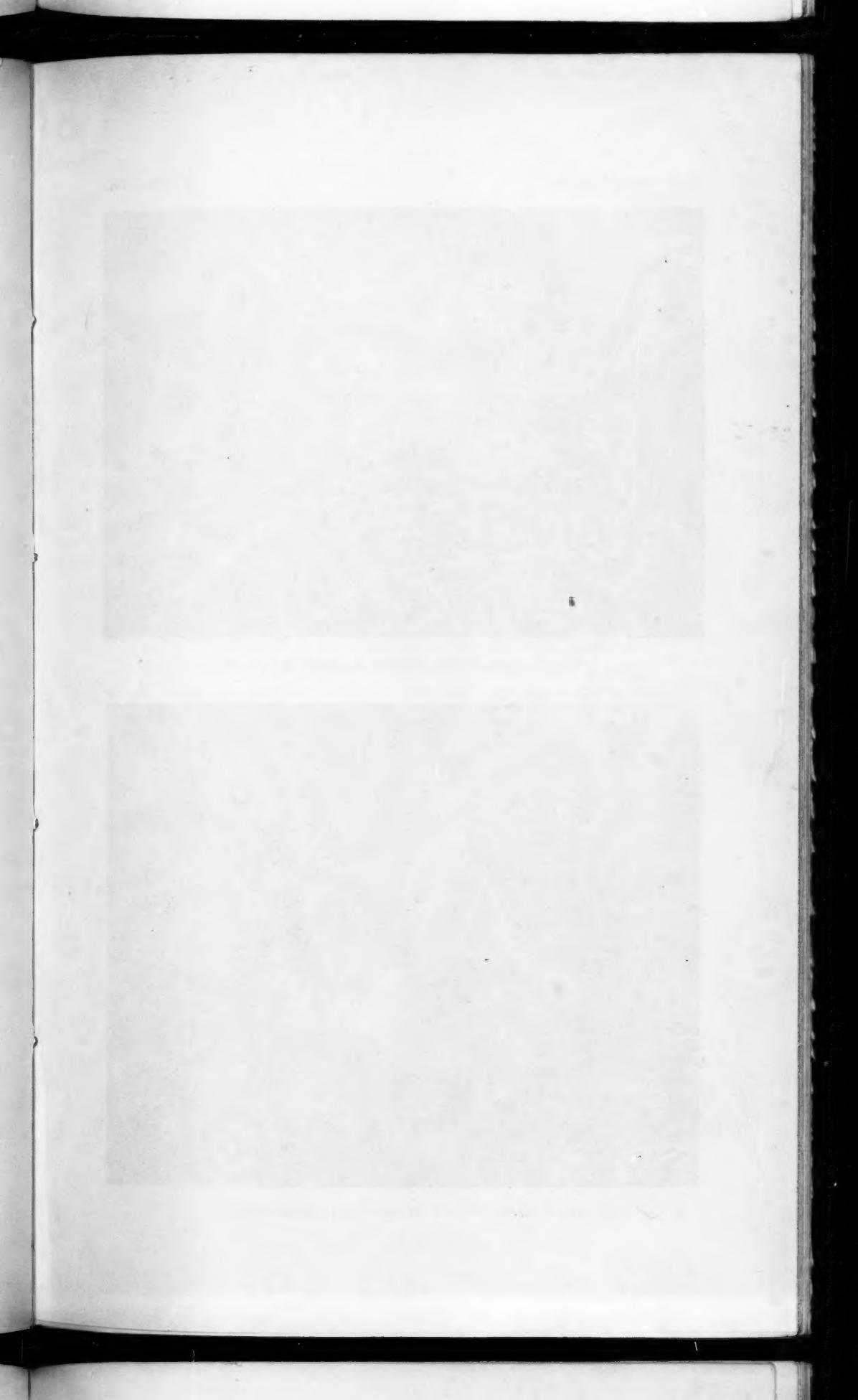




FIG. 1. GREAT WHITE HERON, HALF-GROWN YOUNG.



FIG. 2. GREAT WHITE HERON, FULL-GROWN YOUNG.

around the shores of some small estuary, patiently awaiting the approach of their prey, as motionless as white marble statues. When not fishing they may be seen perched on the outer branches of the mangroves, their pure white plumage standing out in marked contrast against the dark foliage, making them very conspicuous even at a great distance.

It is utterly useless to attempt to approach them at such times, for their eyesight, as well as their hearing, is very acute; they are extremely shy and will fly at the sight of an approaching boat half a mile away. It is almost as difficult to approach them on land, even under the cover of the mangroves, where the slightest noise will send them flying away croaking hoarsely. Only once was I able to outwit them, on one of their favorite roosting keys, where, after stalking them fruitlessly for several hours, I finally concealed myself among some thick underbrush and awaited their return; I was rewarded by securing two fine specimens as they flew over on their way to their evening roost. In all their movements they are deliberate and dignified; in flight they are slow, direct and powerful, with steady strokes of their great wings, the head drawn in upon the shoulders and the long legs stretched out straight behind.

On several of the Keys we found empty nests of large Herons, some of which were probably referable to this species, but we found only one of their breeding colonies. This was on one of the Oyster Keys where on April 29 we discovered a small rookery of half a dozen pairs of Great White Herons and one or two pairs of Ward's Herons. The key was very small, less than an acre in extent, of the mud key type with a little dry land in the centre, overgrown with a thick tangle of underbrush; the usual strip of red mangroves occupied the whole of one end of the island where we nearly overlooked the little colony of nests which were all grouped about a small inlet or bay. The Herons had all left the island, silently and unobserved, long before we landed, and an occasional glimpse of a great white bird in the distance was all we saw of the parents of the helpless young, whose identity fortunately was beyond question. A Ward's Heron flew over us within gunshot, but the Great White Herons never came anywhere near it.

There were four nests of the Great White Heron, all on the outer ends of the horizontal branches of the mangroves, over the water and from 10 to 20 feet above it. The nests, much resembling those of the Great Blue Heron, were large flat platforms of large sticks, smoothly lined with coarse twigs and dry mangrove leaves. The only one that I measured was about 35 by 28 inches outside, and the inner cavity about 15 inches in diameter. This nest contained two eggs and one young bird, just hatched, covered with white hair-like down. A nest near by held two young, about one quarter grown, and one addled egg. Another nest contained three young birds, about half grown, pure white and very pugnacious; they bristled up their plumage, squawked and snapped their bills vigorously, while their throats were vibrating rapidly as if panting from fear or excitement; sometimes they would lie on their sides as if completely exhausted, panting rapidly all the time. They objected decidedly to having their picture taken and refused to pose at all gracefully.

The most interesting nest of all was about twenty feet up on the outer end of a leaning red mangrove and the two large white birds in it could be plainly seen from the ground; they were nearly fully grown, fully feathered and pure white all over, almost indistinguishable from adults. When I climbed the tree one of them stood up in the nest and posed gracefully in dignified silence, while I took as many photographs as I cared to of the beautiful picture.

The eggs of the Great White Heron are not distinguishable from those of the Ward's Heron in size, shape or color, though they are somewhat larger than those of the Great Blue Heron; the only two I collected measured 2.67 by 1.84 and 2.60 by 1.81 inches; they are of the usual heron's egg color, pale greenish blue. But the young are always distinguishable by their pure white color from the day they are hatched.

The Great White Herons are well able to take care of themselves, as they are very difficult to shoot and not in demand for millinery purposes. Their rookeries are small and too much scattered to offer much temptation to nest robbing negroes.

Ardea herodias wardi. WARD'S HERON.

The southern representative of the Great Blue Heron is one of the characteristic birds of Florida and for so large a bird is decidedly abundant; especially so along the Indian River where it is usually the first of the Herons to be seen; as the train runs along close to the river, just above Titusville, the shore seems to be lined with Ward's Herons, standing like sentinels at frequent intervals or flapping lazily away for a short distance; sometimes one will scale along on motionless wings close to the water until it can drop its long legs down and alight on some favorite bar. While fishing it stands quite motionless for a long time, waiting for its prey with dignified patience, well becoming the largest member of its group. In general habits it closely resembles its northern relative, but it is not so shy as the Great Blue and not nearly as difficult to stalk as the Great White Heron.

I believe the Ward's Heron is evenly distributed all over the State of Florida and is everywhere common. We found them breeding in small willow hammocks on the prairies of the interior and in the larger willows along the St. Johns River, where nests with newly hatched young were found on April 21. The nests were bulky affairs, made of large sticks about like those of the Great Blue Heron, and were placed in the largest willows, about 10 or 12 feet from the ground. They do not nest in colonies here, or elsewhere that I have observed them, but the nests are scattered about singly or in disconnected groups. The young are grotesque and homely, being but scantily covered with filamentous down of a dirty grayish color.

In Monroe County we found them breeding with the Great White Herons in small numbers and we saw them or their empty nests on many of the keys. Here their nests were built in the red mangroves or on the tops of bushes, never more than half a dozen or so in a group. We found only one occupied nest in this region, which on April 29 contained two small young; the nest was about 25 feet up in a red mangrove in the Great White Heron colony. Both of these large Herons are early breeders and, as we generally saw both species together, it was impossible to identify the many nests from which the young had flown.

Probably the young learn to fly soon after leaving the nest, for we found no young birds in the trees about any of the nests, as we did with all of the smaller Herons.

Herodias egretta. AMERICAN EGRET.

This beautiful plume bird is, I am sorry to say, fast becoming a rare bird in Florida, though it still occurs in small numbers all through the interior of the State. It is by no means wary, is so strongly attached to its home and is so courageous in the defence of its young that it has been an easy matter for the plume hunters to annihilate rookery after rookery. In Brevard County we visited two localities, small cypress swamps, where the year before large breeding rookeries of Egrets existed, but not an occupied nest was to be seen and only two or three scattering birds flying off in the distance. On the upper St. Johns we saw a few American Egrets but found no nests. It is known here as the "big white heron" and can be distinguished at a distance from the Snowy or Little Blue Herons by its slower and heavier flight. Undoubtedly a few Egrets still breed in this region in the rookeries with other species.

In Monroe County we found the American Egrets breeding sparingly in the large rookeries with the White Ibises and the smaller Herons. Among the 4000 birds at the Cuthbert rookery we counted 18 American Egrets and found seven nests. The birds were very tame, constantly alighting in the trees near us, and we could easily have killed as many as we wanted, but the A. O. U. warden, Mr. G. M. Bradley, who acted as our guide, was so solicitous for their welfare that we refrained from shooting a single bird; one wounded bird, unable to fly, was the only specimen we obtained. Most of the nests were in the low red mangroves over the water, but one was near the top of a black mangrove on a horizontal branch 15 feet from the ground.

The nests were about as large as Night Heron's, loosely and poorly made of coarse sticks and not as smoothly lined as most Heron's nests. Three of the nests held eggs, one set of two and two sets of three, of the typical color, light greenish blue varying in intensity. The other nests had young of various ages, from

one quarter to two thirds grown, covered with pure white down until the white plumage appears.

The young were very precocious, even when half grown, leaving the nest at the slightest provocation and climbing nimbly over the surrounding branches ; it was surprising to see how fast and how far they could travel without falling ; they were so lively that it was a difficult matter to photograph them successfully.

I cannot too strongly urge the necessity of protecting this species and its smaller relative, the Snowy Heron, if they are to be saved from utter extinction. These two are the principal sufferers from the destructive persecution of the plume hunters ; but, fortunately for them, they are now so rare everywhere, except in the most inaccessible localities, that it hardly pays to hunt them ; though an increased demand for aigrettes at higher prices might prove disastrous. Under adequate protection, with a thorough posting of the rookeries and with strict enforcement of the very good laws now in force, there are probably enough Egrets left to partially restock their former haunts.

Egretta candidissima. SNOWY HERON.

What I have already said about the disappearance of the Egrets is also true of this species. Although once very abundant all through Florida it has now been nearly exterminated, comparatively speaking, but I am hopeful enough to think that the work of destruction has been checked in time to save this beautiful species from extinction. There are still a few Snowy Herons left in the big rookeries of the upper St. Johns, and a number of them still breed in the more inaccessible rookeries of the Cape Sable region. In the former locality we spent all of one day and part of another in the largest of the rookeries at Braddock Lake, where hundreds of Louisiana Herons and many Little Blue Herons were breeding, trying to identify the nests of the various species among which were a few Snowy Herons. We were unable to determine how many of this species were nesting there and I succeeded in positively identifying only two nests of the Snowy Heron. This rookery was on a small muddy island, in

the middle of the great marsh, covered with a thick growth of small willows from 12 to 15 feet high.

Although all three species of Herons were very tame, alighting on the trees all about us, they were very careful not to settle down on to any of the nests within sight of us; it was only by lying for hours carefully hidden under some thick clumps of large ferns that I was able to satisfactorily identify a few nests. The first nest of Snowy Herons, containing four eggs, was placed 8 feet up in a slender willow and was merely a flimsy platform of small sticks. The second nest held five eggs and was located only 5 feet up in a leaning willow; it was made of larger sticks and lined with fine twigs. Neither the nests nor the eggs of the Snowy Heron are in any way distinguishable, so far as I could determine, from those of either the Louisiana or the Little Blue Herons. It is necessary to see the bird actually sitting on the nest to make identification sure; even then young Little Blue Herons in the white phase are liable to lead to confusion and it is necessary to see the black legs and yellow feet or the graceful plumes of the Snowy Heron. We did not see any Snowy Herons anywhere except in the breeding rookeries and even there they were very shy.

***Hydranassa tricolor ruficollis.* LOUISIANA HERON.**

This beautiful and graceful little Heron is by far the most abundant of its family in all sections of Florida that I have visited. Fortunately its beauty is not expressed in plumes, hence it has escaped the merciless persecution of the plume hunters; but it is not without plumes, such as they are, which may lead to its destruction when the white aigrette supply is exhausted. Like all the small Herons its flight is light, rapid and graceful, the head drawn in upon the shoulders and the legs stretched out behind. While fishing it stands erect and motionless until some small fish swims within reach, when it crouches down close to the water, takes a few rapid steps forward and darts out its sharp bill like a flash, usually catching the fish near the surface.

We found the Louisiana Heron breeding very abundantly on the upper St. Johns; sometimes they were in rookeries by them-

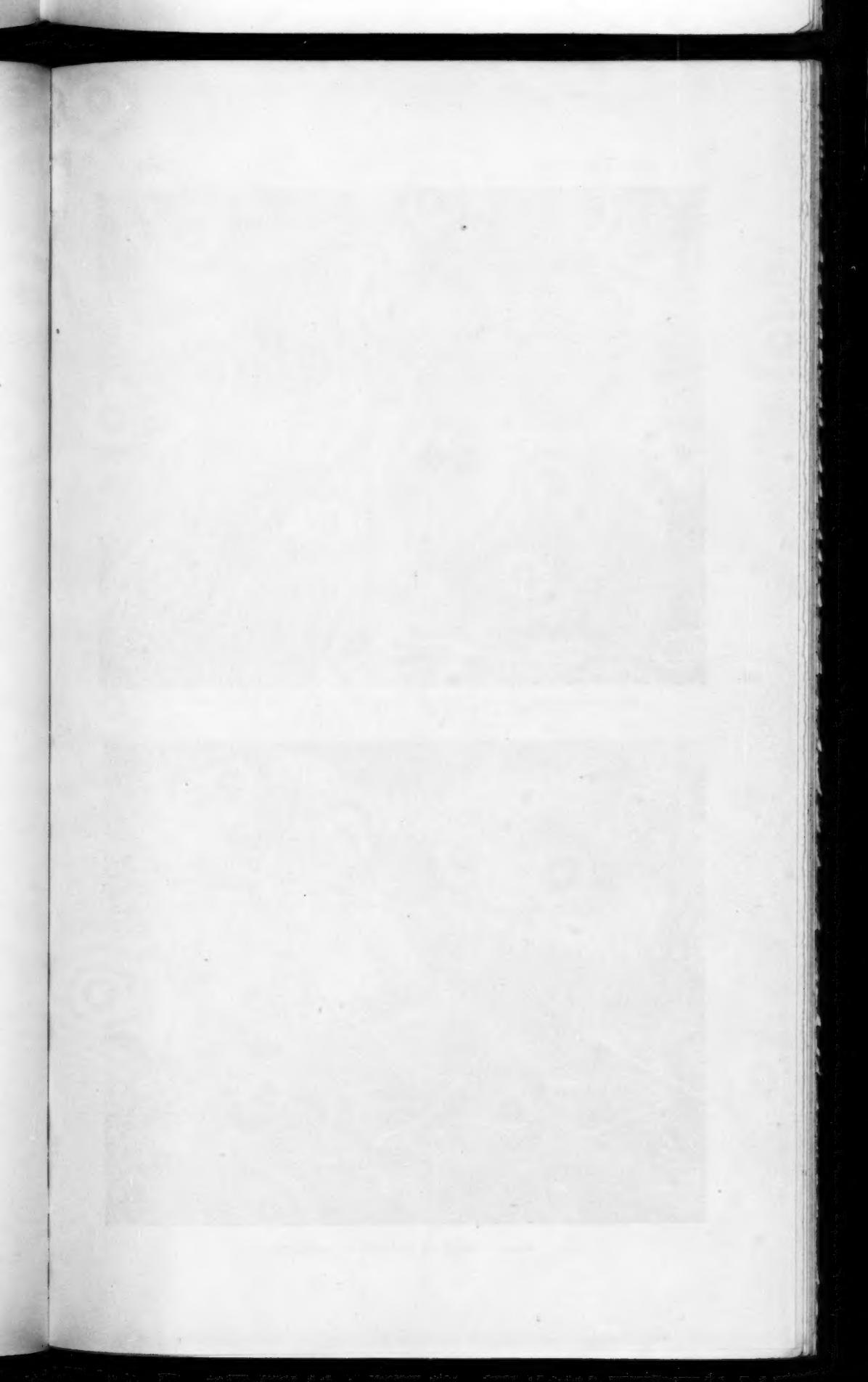




FIG. 1. NEST OF LOUISIANA HERON.



FIG. 2. NEST OF LOUISIANA HERON.

selves and sometimes in company with Little Blue and Snowy Herons, where all the nests held eggs during the latter part of April. In the big rookery at Braddock Lake, referred to above, the Louisiana Herons occupied all the central portions of the rookery, forcing the other species into the outskirts. Their nests were built in the willows in every available spot and at every height from 2 to 12 feet above the ground, often several nests in the same tree; they were neatly and well made of small sticks and smoothly lined with fine twigs. Most of the nests contained four or five eggs and one held six. The eggs were practically indistinguishable in size, shape or color from those of the Little Blue or Snowy Herons.

As evidence that they do not always live in perfect harmony with their neighbors, I saw, while lying concealed in the rookery, a Louisiana Heron alight on a Little Blue Heron's nest and deliberately poke the eggs out on to the ground, with her bill, one after another; the owner of the nest did not appear during the process. All of the smaller Herons suffer from the depredations of the Fish Crows which are constantly sneaking about in all the rookeries ready to pounce upon and devour, or fly away with the eggs as soon as the owners give them a chance.

In Monroe County we found the Louisiana Herons everywhere abundant, breeding in all the inland rookeries as well as on many of the mangrove keys. At the Cuthbert rookery they formed at least half of the colony, where we estimated that there were about 2000 of them. Here they occupied the centre of the rookery filling all the trees with nests, most of them from 6 to 12 feet from the ground in the black and red mangroves, a few being in the 'buttonwoods.' At the time of our visit, on May 1, fully three quarters of the nests contained young birds of various ages. The young bird is covered at first with dark gray filamentous down; the down on the head soon forms a prominent upright tuft of wood brown hairlike filaments, giving the young bird a very curious expression; later on, as the bird attains its growth, it begins to assume the white breast plumage of the adult, starting as a narrow line down the centre of the breast and neck. When about two thirds grown the young begin climbing out of the nests and along the branches of the trees; they are quite expert at this

and can cling on quite tenaciously with their big awkward feet and bills. But they often pay a severe penalty for their precocity by falling and becoming entangled. Their parents seem unable to help them in such predicaments, as we saw a number of their dead bodies hanging by one foot from the edges of the nests.

Florida cærulea. LITTLE BLUE HERON.

Next in abundance to the Louisiana Heron comes the Little Blue, with which it is intimately associated and practically identical in distribution. Both species have escaped destruction by the plume hunters, for the same reason, the lack of marketable plumes, and they are very much alike in general habits. They fish in the shallow waters along the shores of the Indian River and in most of the small pond holes in the interior. They are very active while fishing, walking about constantly but standing erect occasionally and darting straight down upon their prey. Birds in the blue phase predominated, but we saw a great many in the white phase even in the breeding rookeries.

On the upper St. Johns we found them breeding commonly on the willow islands with the Louisiana Herons, but never in rookeries by themselves. So far as we could judge, from what few nests we were able to identify and by watching them rise from their nests as we approached the rookeries, the Little Blues always nested in the smaller willows on the outer edges of the islands. The nests were usually placed very low down, mostly from 2 to 4 feet from the ground, in small trees or bushes or on the lower branches. Their nests and eggs were practically indistinguishable from those of the other small Herons and positive identification was difficult, as they were very shy about alighting on their nests, though tame enough in other respects.

In Monroe County we saw Little Blue Herons feeding in all the shallow estuaries and lakes and found them breeding in the big rookeries with other species. Their nests here also were confined to the outskirts of the rookeries where they were bunched together in compact groups. We did not find them breeding on any of the keys.

There is little danger, under the protection now afforded them,

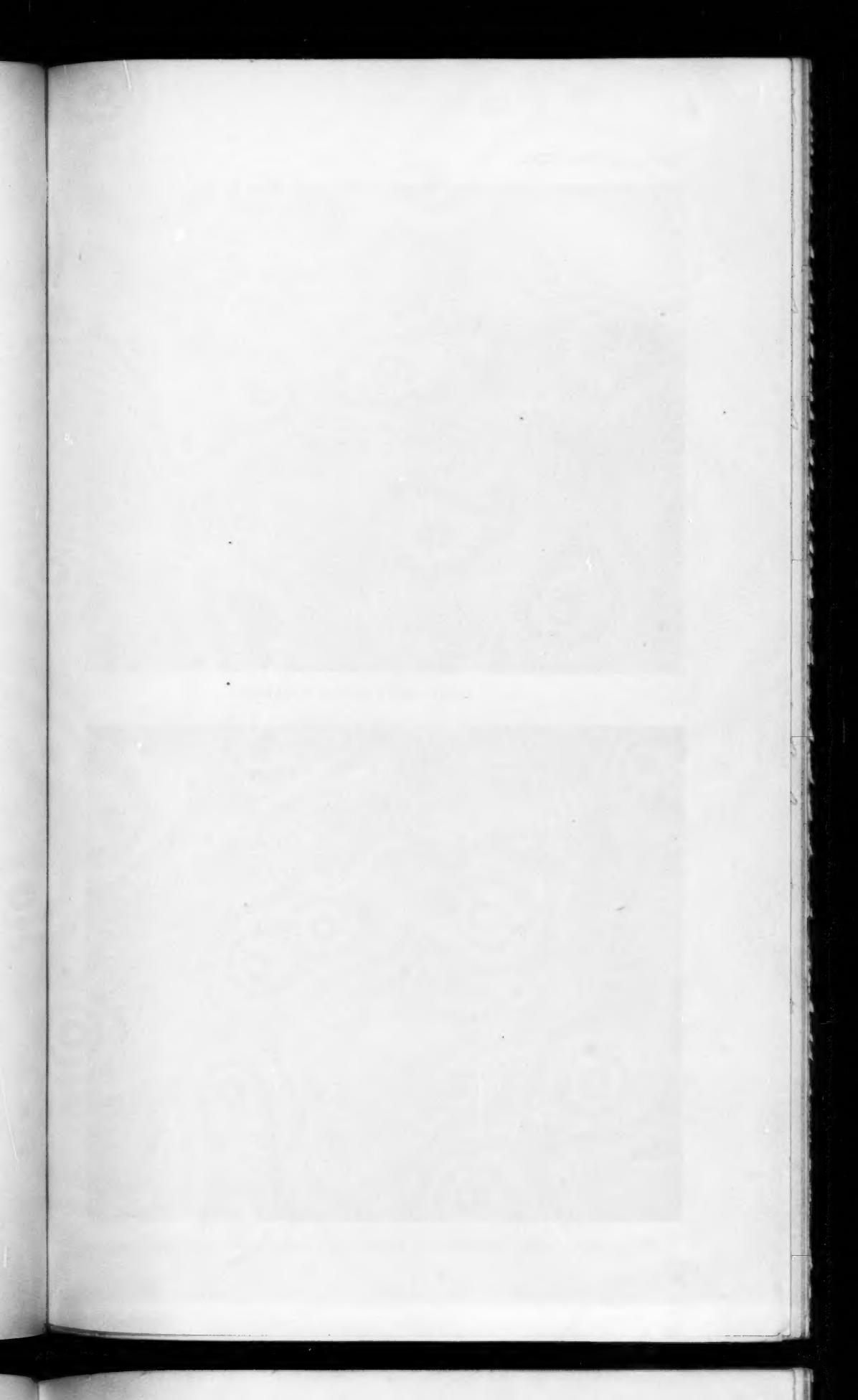




FIG. 1. LITTLE BLUE HERON ROOKERY.



FIG. 2. NEST AND EGGS OF YELLOW-CROWNED NIGHT HERON.

that either this or the preceding species will be exterminated for many years to come, though the young are taken from the nests for food by the natives of southern Florida.

Butorides virescens. GREEN HERON.

The status of this widely distributed species is about the same in Florida as elsewhere throughout its range. It is nowhere abundant but evenly distributed in all suitable localities. We found scattering pairs of Green Herons breeding on Merritts Island and in the interior of Brevard County, nesting in little clumps of willows about the small pond holes. A few were seen on the upper St. Johns and a few in Monroe County, among the keys as well as along the streams in the interior. Among the hosts of other interesting species we paid but little attention to the Green Herons and noticed nothing new about their nesting habits, which are practically the same here as elsewhere.

**Nycticorax nycticorax nævius. BLACK-CROWNED
NIGHT HERON.**

I shall not prolong this paper with an account of this well known species. It is enough to say that we found it nearly everywhere that we went. A few Black-crowned Night Herons were breeding in the rookeries with other species on the St. Johns River, one or two pairs in almost every rookery. In Monroe County it was fairly common in the interior. We started a flock of about 75 birds off one of the keys where they probably had a fair sized breeding colony, though we did not have time to explore it.

Nyctanassa violacea. YELLOW-CROWNED NIGHT HERON.

This handsome Heron was nowhere very common in the regions we visited, though, I believe, in certain sections it is quite abundant. In its full breeding plumage it is a striking and con-

spicuous bird. It is by no means shy, especially near its nest, where it will stand in the top of the nearest tree silently watching the intruder.

There were one or two pairs of these birds in nearly every rookery on the St. Johns, but in spite of our efforts, we succeeded in finding only two of their nests, both on April 21.

The first nest was on the outer edge of the rookery on a leaning willow and only four feet above the water. It measured 20 by 16 inches, was made of large sticks and lined with fine twigs; the five eggs in it were on the point of hatching, some of them already pipped, so we contented ourselves with photographing it while the bird was flying about anxiously. The second nest was within a few yards of a Ward's Heron's nest, these two being the only nests in the vicinity; it contained two eggs and two young birds, scantily covered with grayish down; it was placed 8 feet from the ground in a small willow, near the end of a long narrow island.

In Monroe County we saw a few Yellow-crowned Night Herons on the inland streams, both young and adult birds, but found no nests.

Although not much in demand for its plumes, it is so tame and unsuspicious that it should be protected, especially from the natives among whom both of the Night Herons are highly esteemed as food.

THE RHYTHMICAL SONG OF THE WOOD PEWEE.

BY HENRY OLDYS.

THE usual phrases of the Wood Pewee are well known. The bird sings so persistently through the summer, when most birds are silent, that its melancholy rising and falling tones are familiar to all that frequent the woods during the milder season. But that these detached phrases are combined into a rhythmical song, uttered during the twilight hours of morning and evening, is a fact that seems generally to have escaped observation.

I first heard this interesting utterance in 1894, and not again,

although I was carefully listening for its repetition, until 1899, five years later. Every year since 1899 I have heard it with growing frequency, until now it is one of the ordinary bird songs of spring and summer.

The song is remarkable in that it is constructed in the form of the ballad of human music. I have elsewhere shown the significance of this fact,¹ and will not repeat the deductions to which it gives rise; but it may be well here to explain the identity of construction.

The arrangement of the ordinary ballad frequently consists of a musical theme for the first line, an answering theme for the second line that leaves the musical satisfaction suspended, a repetition of the first theme for the third line, and a repetition of the second theme, either exactly or in general character, but ending with the keynote, for the fourth line. An example will make this clear. Let us analyze the first four lines of 'Way Down upon the S'wanee River.'

Note the symmetrical repetition of phrases, giving a pleasing balance to the composition. Observe also that the note marked

1st theme.

2d, or answering theme.

1st theme repeated.

2d theme repeated (in character)*

a

b

a that ends the second line does not satisfy the musical sense, but leaves the listener in suspense, with the expectation of more to follow; but the note marked *b* at the end of the fourth line is the keynote, and is completely satisfying; there may be more to the song, as in the case of the example quoted, but it is not necessary that there should be. The effect is as though a semicolon, a colon, a semicolon, and a period were placed at the ends of the respective lines.

¹ Harper's Magazine, August, 1902, pp. 477-478.

The Wood Pewee's continuous song is governed by the same principles. As I first heard it, it was rendered as follows:

1st theme. **Answering theme.** **1st theme repeated.** **2d theme repeated (in character).**

The notes marked *a* and *b*, the closing notes of the second and fourth lines, have the same character as those in the corresponding positions in the human ballad given.

In the many times I have heard this song there have been numerous variations, such as

A musical score for 'The Star-Spangled Banner' in 2/4 time, key of G major. The tempo is marked as quarter note = 92. The score consists of four measures of music for a single melodic line. Measure 1 starts with a half note followed by a eighth note tied to another eighth note. Measure 2 starts with a half note followed by a eighth note tied to another eighth note. Measure 3 starts with a half note followed by a eighth note tied to another eighth note. Measure 4 starts with a half note followed by a eighth note tied to another eighth note.

in which the third line and the passing note in the first line are omitted;

A musical score for piano, showing two staves. The top staff uses a treble clef and a common time signature, with a tempo marking of quarter note = 100. The bottom staff uses a bass clef and a common time signature. Both staves feature a series of eighth-note patterns involving grace notes and slurs.

in which an extra set of the first and second themes is given;

A musical score for 'The Star-Spangled Banner' in treble clef, 3/4 time, and B-flat major. The score shows measures 11 and 12, which begin with a bassoon solo. Measure 11 ends with a fermata over the bassoon's note. Measure 12 starts with a forte dynamic and includes a melodic line for the bassoon.

in which the last line ends with the second of the scale, instead of with the tonic or keynote (metronome number not taken);

A musical score for piano, featuring two staves. The top staff uses a treble clef and a key signature of four sharps, indicating G major. The bottom staff uses a bass clef and a key signature of one sharp, indicating D major. The time signature is common time (indicated by '4'). Measure 1 starts with a dotted half note followed by a quarter note. Measure 2 starts with a half note followed by a quarter note.

almost identical with the preceding example;



a very melodious song, one of three that were heard simultaneously;



in which the repetition of the first phrase is omitted — pitch a shade flatter than E; final note very lightly touched, the stress falling on the preceding F#; and



in which the tempo is somewhat more strenuous than in the preceding examples.

In addition to these and other variations that have come under my personal observation, there is a very peculiar one reported to me by Mr. Gerrit S. Miller, Jr. A Wood Pewee near his home in Alexandria County, Va., occasionally rendered the rhythmical song in a much higher key and in what Mr. Miller calls a falsetto voice — very light and high.

The song is usually sung over and over in strict time and without pause between verses. I have known it to continue for fifteen or twenty minutes at a time. It is usually preceded, and often followed, by the ordinary detached phrases. According to my experience it is never sung after dark, though the usual song may frequently be heard through the night, but seems to be confined almost entirely to dawn and dusk. It is not peculiar to any particular season during the Wood Pewee's stay with us, as I have noted it from shortly after the bird's arrival in spring to at least as late as September 7.

In closing this brief account I would call attention to the

remarkable fact — perhaps a joke on us — that a bird which we have classed outside the ranks of the singers proper should deliver a song that judged by our own musical standards takes higher technical rank than any other known example of bird music.

THE STATUS OF *MELOSPIZA LINCOLNI STRIATA* BREWSTER.

BY JOSEPH GRINNELL.

Melospiza lincolni striata Brewster.

Melospiza lincolni striata BREWSTER, Auk VI, April 1889, 89 (original description, based on September birds from Comox, B. C.). — CHAPMAN, Bull. Am. Mus. Nat. Hist. III, 1890, 148 ("standing doubtful"). — RHOADS, Auk X, Jan. 1893, 21 (characters not considered good). — RHOADS, Proc. Ac. Nat. Sci. Phil., 1893, 51 (characters considered "slight and variable"). — McGREGOR, Condor, II, March 1900, 35 (skins from Redwood City, San Geronimo, St. Helena, and Battle Creek, California). — GRINNELL, Pac. Coast Avif. No. 3, June 1902, 57 (winter visitant in California "south through the coast belt to the San Francisco Bay region"). — BREWSTER, Bull. Mus. Comp. Zoöl., XLI, Sept. 1902, 150 (specimen from Victoria Mountains, L. Cal.; "I see no reason why the existence of intermediate specimens, such as those to which Mr. Chapman calls attention, should be necessarily prejudicial to the recognition of the form as a subspecies, although its standing cannot perhaps be regarded as assured until its breeding-grounds are definitely known, and fully mature birds in summer plumage have been examined").

Melospiza lincolni GRINNELL, Auk, XV, April 1898, 128 (found breeding at Sitka, Alaska, and a juvenile one-third grown secured; Mr. Brewster comments on an adult bird submitted to him as follows: "Your Lincoln's Sparrow from Sitka, Alaska, agrees closely with my types of *M. c.* [sic] *striata* in respect to the streaking of the upper parts, but it is less olivaceous and the buffy is less rich and deep. Making due allowance for seasonal and individual variation, I should think it not improbable that it may represent the breeding plumage of *striata*, but it would be of course unsafe to assume this positively on the strength of a single specimen." [Mr. Brewster's wise but cautiously-made conjectures have proven correct]). — RIDGWAY, Bds. N. & Mid. Am. I, 1901, 382 (*striata* doubtfully synonymized under *Melospiza lincolni*).

As shown by the above references, the validity of a Northwest Coast race of *Melospiza lincolni* has been as often doubted as affirmed. Ever since I began the systematic study of west-coast birds, this question has particularly interested me, and I have seldom neglected an opportunity to secure relevant specimens or information. As a result there is now at hand material which clearly demonstrates the existence of the form *striata*, as described fifteen years ago by Mr. Brewster.

It seems that heretofore breeding birds have been wanting; but fine specimens, now available, from Sitka and Wrangel show the summer habitat of *striata* to be the Sitkan District, of Nelson, in southeastern Alaska. A sharply defined winter habitat, also, is constituted by the humid coast belt of California (San Francisco Bay Region, Santa Cruz and Northern Humid Coast Districts, as mapped in Pacific Coast Avifauna Number 3). *Melospiza lincolni lincolni* occurs commonly in other parts of California in winter and especially during migration, and a few breed in the Sierras. But *Melospiza lincolni striata* seems to be the only form wintering in the above indicated habitat, and does not regularly move beyond its limits. These statements are drawn from about forty-five skins of both forms examined from California. Mr. McGregor has recorded a specimen of *striata* from Battle Creek, while Mr. Brewster refers a single skin from Lower California to the same form; but these may be considered exceptional. I may here remark that I have so far failed to find a really satisfactory "intermediate," though alleged cases have been recorded. Mr. Brewster's type was a male in fresh fall plumage (Comox, B. C., Sept. 8). His painstaking and detailed description applies precisely to a specimen (δ , No. 5016 Coll. J. G.; Pacific Grove, Monterey County, California; Dec. 26, 1901) which is selected as being representative of my winter series. The summer plumage of *striata* (δ ad. No. 5341 Coll. J. G.; Wrangel, Alaska; June 25, 1902; collected by M. P. Anderson) differs from the winter plumage in greater conspicuousness of black markings, and in paleness and restriction of buffy suffusion, both evidently due to abrasion and slight fading. Compared with *lincolni* of equally worn plumage the upper parts of summer *striata* are much more broadly black-streaked, the olive edgings worn to such narrowness that the black predominates;

pectoral and lateral streaking also broader; central tail-feathers with much broader shaft-streaks. Briefly, color-differences are pronounced, and as far as present material goes, constant at all seasons.

The small size of *striata* is an especially good character, as shown by the accompanying table of measurements (in inches) made from selected specimens. Decreased wing and tail lengths seem to be an accompaniment of shorter yearly migration, here, as in *Hylocichla guttata verecunda*, *Regulus calendula grinnelli* and *Hesperocichla naevia naevia*, of corresponding summer and winter distribution.

Melospiza lincolni striata.

No. Coll. J. G.			Wing	Tail
♂ 4616	Palo Alto, Cal.	March 29, '01	2.25	2.25
♂ 5016	Pacific Grove, Cal.	Dec. 26, '01	2.37	2.37
♂ 5341	Wrangel, Alaska	June 25, '02	2.35	2.35
♀ 4551	Palo Alto, Cal.	Jan. 19, '01	2.22	2.28
♀ 4552	" "	" "	2.23	2.35
♀ 4989	" "	Dec. 20, '01	2.25	2.28
♀ 3641	San Geronimo, Cal.	Sept. 15, '98	2.26	2.35
♀ 1179	Sitka, Alaska	June 25, '96	2.22	2.22

Melospiza lincolni lincolni.

	Wing	Tail
Average of 7 ♂♂ from So. Cal.	2.50	2.52
Average of 5 ♀♀ from So. Cal.	2.40	2.42

GENERAL NOTES.

Holbæll's Grebe at Niagara Falls.—While on a trip to Niagara Falls this past fall (Sept. 20, 1903) in company with Mr. Frederick C. Hubel, I picked up a fine specimen (ad. ♂) of Holbæll's Grebe (*Colymbus holbælli*) on the Canadian side just opposite the American Falls. Upon questioning the proprietor of a curio shop, a few feet from the spot, he informed me that he shot the bird early that same morning swimming out in the

rapids. Personal examination proved that the grebe had been dead only a few hours.—ALEXANDER W. BLAIN, JR., *Detroit, Mich.*

Holbæll's Grebe and the White Pelican at St. Mary's Georgia.—On February 18, 1904, I shot a Holbæll's Grebe (*Colymbus holbælli*) in the mouth of Cumberland River, only about one mile from Florida waters. Mr. Chapman in his 'Handbook of Birds of Eastern North America' (the latest authority I have) gives South Carolina as the southern limit of its range.

During the fall migrations (1903), three American White Pelicans (*Pelecanus erythrorhynchos*) were taken within a radius of twenty miles of this place — one in the St. Marys River opposite Kings Ferry, Fla.; one in the Satilla River, about Satilla Bluff, and one at Stafford Plantation on Cumberland Island. All three, I believe, were in such an exhausted condition that they were taken alive.—ISAAC F. ARNOW, *St. Marys, Ga.*

Another Ohio Record for the Knot (*Tringa canutus*).—Authentic records for the occurrence of this bird in Ohio are few and far between. It gives me great pleasure to add at least one more record. While going over a small lot of Sandpipers and Plovers in the museum of Heidelberg University, I came across a specimen of this bird, shot in the spring of 1894 on the banks of the Sandusky River, here at Tiffin.—W. F. HENNINGER, *Tiffin, Ohio.*

The Red-backed Sandpiper in Massachusetts in December.—Mr. George C. Shattuck gave me a Red-backed Sandpiper (*Pelidna alpina pacifica*) which he shot on Barnstable Neck, Mass., on December 23, 1903. It was in company with another of its kind.—REGINALD HEBER HOWE, JR., *Concord, Mass.*

Capture of Krider's Hawk at St. Marys, Georgia.—I take pleasure in recording the capture of a male Krider's Hawk (*Buteo borealis kriderii*) in the extreme southeastern corner of Georgia on February 3, 1904. In the winter of 1901-02 Mr. A. H. Helnn, of Miller Place, N. Y., and I were hunting on Point Peter, a Government reservation a few miles down the river from this place, and saw two apparently very light colored Red-tailed Hawks but failed to get a shot at them. He remarked that they looked as light as Krider's Hawk. This winter I found that one at least was there again and I made several trips there trying to get a shot, but while I would see him on every occasion he was too wary for me to get what I considered a sure shot, and I would take no chances at him. On February 3, I decided I would try him again. Just before reaching my landing place, and while just opposite his haunt, I saw a hawk coming across from the Florida side of the river and scarcely had time to throw down my oars and get a suitable shell in my gun when he was abreast of me. I shot and he fell in the river about 100 feet astern. I found him

to be the hawk I was looking for, and a beauty, and I have added him to my modest collection of skins. He was evidently living high on Clapper Rails, as he had one in his stomach and another freshly eaten in his crop.
—ISAAC F. ARNOW, *St. Marys, Ga.*

The Great Gray Owl near Boston. — On February 7 of this year I saw a Great Gray Owl (*Scotiaoptex nebulosa*) in Dedham, Mass. I was attracted to the spot by a great clamor of Crows and soon found my bird perched on a low limb of a white pine in open mixed woods. It held in its claws a dead and partly eaten crow, which when it was finally dropped by the owl in flight, I found to lack the head and fore part of body and the viscera. The owl seemed perfectly fearless of me, but showed nervousness when the crows cawed near by, and followed with its eyes the flight of the single crows that flew over its tree from time to time. I drove it about from tree to tree with snowballs. It flew low and always took a rather low perch, — from ten to twenty feet from the ground, and usually on a large branch of a pine tree, near the trunk, though twice it alighted on the very top of a red cedar. I could get as near as the height of its perch permitted and was frequently within twenty feet of it during the hour or two that I spent in its company. —FRANCIS H. ALLEN, *Boston, Mass.*

The Pileated Woodpecker in Anne Arundel County, Md. — Upon reading the note of Mr. George W. H. Soelner in 'The Auk' for January, 1904, recording the Pileated Woodpecker (*Ceophlaeus pileatus*) in the District of Columbia, it put me in mind of a record I made November 25, 1896.

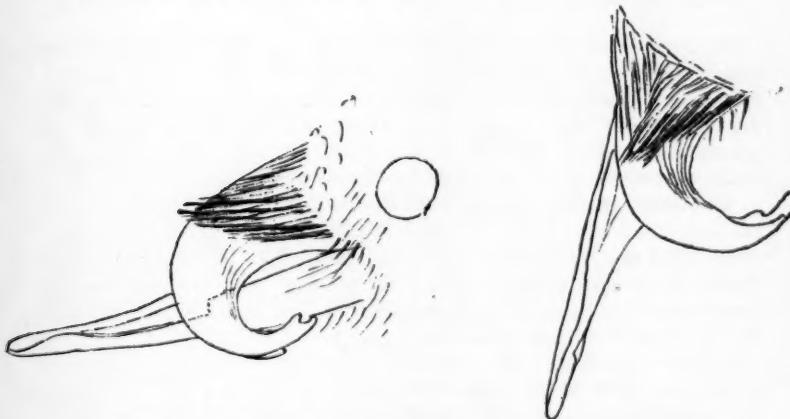
As I was crossing a field bordering some low swampy woodland along Rogue Harbor Creek, I heard the familiar note of this species, and looking up saw one with its broad sweeping flight almost directly over my head, about fifty feet up. This locality was on the line of the Annapolis, Baltimore and Washington R. R., about midway between Odenton and Patuxent.

For the last twenty years, I have found this species to be fairly common while on shooting trips in Somerset County, Maryland, during the months of November, December, and January, always counting upon seeing one or two each day, but on my last trip of ten days' duration, in December, 1903, I neither saw nor heard a single bird. —WILLIAM H. FISHER, *Baltimore, Md.*

Whip-poor-will (*Antrostomus vociferus*), a New Bird for Colorado. — A specimen of this species was found nearly dead in an orchard at Fort Collins, Colorado, about September 14, 1903, by Mrs. R. J. Tenny, who presented it to the Agricultural College. It was given to me for identification and mounting, and after its preparation was sent to Washington for more positive determination, where it was pronounced to be *Antros-*

tomus vociferus, thus adding another species to the list of Colorado birds. At least it is not given in Professor Cooke's list, nor in Mrs. Bailey's 'Birds of the Western United States.' The specimen was in good plumage, but greatly emaciated, although I found no signs of its having been injured.—L. E. BURNETT, *Taxidermist and Collector, State Agricultural College, Fort Collins, Colorado.*

Another Abnormal Bill.—The character of the malformed bill submitted by Mr. B. S. Bowdish in the last number of 'The Auk' seems a common type in abnormalities of that kind. I have in my possession the head of a Crow (*Corvus americanus*) afflicted with the same kind of malformation. In this case, however, the upper mandible is bent completely down and around so as to point over the bird's shoulder. The lower mandible is not so greatly elongated as in Mr. Bowdish's specimen, however, but the notches he speaks of where the mandibles cross



MALFORMED BILL OF CROW (*Corvus americanus*). Nat. size.

are very deep. There is no sign of injury to account for the peculiar growth.

It raises an interesting conjecture in regard to the winter and early spring food supply of these birds. It was killed early in March near Port Huron, Mich., 1901, and was evidently starving to death when the shot gun put it out of misery. Its plumage, however, was in good shape, not quite as glossy perhaps as some, but it was quite evident that the bird did not suffer from lack of food at the time of its last moult. What food it could have lived upon during the winter is a subject for speculation. It was an impossibility to pick up anything from the ground with such a bill, and whatever its diet was during the winter, it could not be found in the more northern ranges in early spring.—P. A. TAVERNER, *Chicago, Ill.*

The Western Meadowlark (*Sturnella magna neglecta*) in Southern Georgia.—In a small series of Meadowlarks from Southeastern Georgia, I find three or four that appear to approach the western form *neglecta*. One specimen, a female, taken March 16, 1903, at 'Mush Bluff' (about four miles from St. Marys), is a typical *neglecta*, and is apparently indistinguishable from specimens of this bird taken in North Dakota.—A. H. HELME, *Miller Place, N. Y.*

The Evening Grosbeak near Quebec, Canada.—On the 24th of November, 1903, four specimens of the Evening Grosbeak (*Hesperiphona vespertina*) were brought to me—three males and a female. They were killed in the woods in the vicinity of Quebec. Later, about the end of January, 1904, five others, of which one was a female, were shot in the same neighborhood. To my knowledge these are, with the exception of one killed in 1890, the only specimens ever met with here.—C. E. DIONNE, *Quebec, Can.*

The Pine Grosbeak on Long Island, N. Y.—It is so rarely that Long Island is favored with the presence of the Pine Grosbeak (*Pinicola enucleator canadensis*) that their occurrence here in considerable numbers during the past winter is worthy of record. During the last twenty five years there have been few winters that I have not spent considerable time in the field at this place, but I have never been able to meet with this bird, to be certain of its identity, until the past winter. I have heard of a few instances of its occurrence on Long Island in former years, as at Miller Place, Cold Spring, Middle Island, and Terryville. At Miller Place, on November 26, 1903, three Grosbeaks were noted in an orchard near my house, and later a red male was seen flying westward. I was told of a "flock of Butcher Birds" that were seen here about a week prior to this date. From the description given me I have little doubt that they were Pine Grosbeaks. While perched on the top of a tree, and in their undulating flight, they bear a strong resemblance to shrikes, and if seen singly by one unfamiliar with them might readily be mistaken for these birds. From November 13 to 25, I was away from home and cannot tell at what time they began to arrive. I am inclined to think that some birds I heard early in the month were Grosbeaks, but I was not then familiar with their notes and did not recognize them. November 27, I left Miller Place and did not have another opportunity to look for them until December 4, when I met with a small flock in a cedar grove not far from my house. In this grove, from this time on until about the middle of February, Grosbeaks could be found in varying numbers. The last one was seen on February 28. On February 1 and 6 they were more plentiful than at any other time, and appeared to be migrating. Not more than two per cent were in the red plumage. Their food consisted almost entirely of the seeds of the red cedar. The seeds were nearly always crushed before they were swallowed, only the inner portions of the seeds being eaten.

Occasionally a few would come into the orchard and pick among the frozen apples left on the trees. While feeding they were very gentle and I had no difficulty in catching several in a small scoop-net, made of fine wire, attached to a pole. Four that I have in a large cage are very fond of sunflower and hemp seeds. They will eat canary and rape seed but prefer that of the sunflower. Millet seed they will not eat if they can get any other food. They appear to have four distinct sets of notes,—a low querulous note uttered while feeding; another, somewhat resembling that of the Goldfinch, uttered both on the wing and while sitting in the trees; and a longer drawn whistle that reminds one of a Cedar-bird. This appears to be their usual call-note when restless and alarmed. Several times I heard an attempt at a song, consisting of three or four finch-like notes. During the winter I met with a few Grosbeaks at Rocky Point, and heard of their presence at several other places on Long Island.—
A. H. HELME, *Miller Place, N. Y.*

The Pine Grosbeak on Long Island, N. Y.—After years of waiting I am at last able to positively record this species on Long Island. Three specimens were seen at Southold, February 2, 1904, by Mrs. A. F. Lowerre who is an unusually careful observer. Her report is as follows: "Tuesday morning I saw three birds in a neighbor's honeysuckle. Took my opera glass and went close to study them. Found they were Pine Grosbeaks, either all females or young male birds. There were no carmine-red adult males to be seen. I never saw or heard of them here before."

February 12 Mrs. Lowerre wrote: "I saw the three grosbeaks again yesterday; the only places they seem to visit are the honeysuckle vines." Subsequently Mrs. Lowerre reports that she did not see the grosbeaks after February 11.

All Giraud says of them is: "In the autumn of 1827, large flocks of pine grosbeaks visited Long Island.... Since that period until the present year (1844), I have not seen or heard of its occurring on Long Island."—
WILLIAM DUTCHER, *New York City.*

White-winged Crossbill — A Correction.—Mr. Spicer of Goodrich, Genesee Co., Mich., has requested me to correct a misleading record attributed to him by Professor Cook in his 'Birds of Michigan,' p. 108. Cook quotes him as finding the White-winged Crossbill breeding at Goodrich, Mich., but the note in question (O. & O., 1889, p. 43) refers to the American Goldfinch. Unfortunately this record is quoted in my recent 'List of the Birds of Southeastern Michigan' (Bull. Mich. Ornith. Club, IV, 38) and is very misleading as to the southern breeding range of *Loxia leucoptera*.—BRADSHAW A. SWALES, *Detroit, Mich.*

The Lark Sparrow in Oneida County, N. Y.—June 13, 1903, in the extreme northeastern corner of this county, I saw, and positively identified, a Lark Sparrow (*Chondestes grammacus*). A week later I visited

the same locality, but failed to get a glimpse of the bird again. This, I believe, is the first record of the occurrence of the species in this State, outside of Long Island.—W. S. JOHNSON, *Boonville, Oneida County, N. Y.*

A Chewink in Winter at Ashland, Mass.—On December 29, 1903, at Ashland, Middlesex Co., Massachusetts, I had the good fortune to run across a male Chewink (*Pipilo erythrophthalmus*). He was trying to find food in the snow-covered road, and was so tame that I approached within a few feet before he flew off to some nearby shrubbery. I watched him closely for some time to see whether he was injured, and so unable to migrate,—but he seemed, on the contrary, very active. He uttered the usual call-note once or twice.—ROGER N. BALDWIN, *Cambridge, Mass.*

Another Nest of the Philadelphia Vireo.—I was very much interested in William Brewster's paper relative to *Vireo philadelphicus*, owing to the fact of having personally found an occupied nest of the species. With a view to helping along the good cause by one more step toward establishing the average nesting site I take the liberty of submitting my experience. The exact date is not known, but it was during a sojourn in Leelanau County, Michigan, extending from the 12th to the 21st of August, 1890. At that particular point the rocks arose from the water edge of Traverse Bay, on an angle of 45 degrees, until a height of 30 feet was attained; then came a level stretch of three to four hundred yards densely covered with blackberry bushes, and terminating at the base of a perpendicular bluff about fifteen feet high. The top of this bluff was covered with a second growth of poplar that in turn margined a forest of large white pine trees. We ran a survey line through this poplar belt and it was here I discovered the nest, and quite accidentally, as I was not looking for nests so late in the season. The nest was suspended from the horizontal crotch of a poplar branch which overhung the bluff, but was not more than five feet higher than the bluff top, and I could easily reach into it. In shape, size and construction it resembled the establishment of *Vireo olivaceus* but the exterior was thickly covered with curly pieces of silvery white poplar bark, suggesting, at a short distance, the structure of *V. flavifrons*. The male was not seen, but the female was in evidence and fearless, often approaching to within four or five feet of me. The species was recognized at first glance, indeed, it cannot be mistaken by anyone who has handled the skins. The nest contained two young, but as I reached for them they fluttered out and flew about fifty yards before striking the level of the berry bushes below. This find cannot, of course, be considered strictly authentic, as the birds were not secured, but personally I am as positive of the identity as of that of the *Passer domesticus* that perched upon the window sill a few moments ago.—J. CLAIRE WOOD, *Detroit, Michigan.*

The Philadelphia Vireo. — Mr. William Brewster's article on this vireo in 'The Auk,' 1903, pp. 369-376, is very full and interesting, but at the same time throws discredit and lack of accuracy on other observers. For example, I am absolutely certain that the nest I took at Lansdowne, Ont., in 1895, was not a Red-eyed Vireo's; at the same time I am as positive as it is possible to be without having the bird in hand that it belonged to the Philadelphia Vireo.

Mr. Brewster assumes that I do not know the Red-eyed Vireo. I probably know it as well as he does; as it is a very common bird in Ontario, and not a year passes but that I see its nest. This year, for example, I found a nest in a small maple. I watched the birds closely to be sure of the species, and noted the habits of the pair. This pair was very shy and retiring, whereas the pair of vireos I noted at Lansdowne, in 1895, were demonstrative and noisy. The location was very different as was the finish of the nest, the latter being smaller and not so well finished off and adjusted as the first. I knew from the location my birds were not Warbling Vireos, for which the location was not adapted,—a rough pasture field with swampy places grown up with willow, spruce, etc., and in the drier places, poplar, and no large woods near.

A characteristic of my nest was the presence of shreds of birch bark, which as there were no birch trees near, must have been brought from some distance. I am quite satisfied, in spite of Mr. Brewster's strictures, with my nest and its identification, which was a careful one, just as he no doubt feels satisfied that he has the first authentic nest and eggs of that species on record.

With regard to the yellow shading of the breast. Mr. Brewster must know that the intensity of coloring in both vireos and warblers is a very uncertain element.—C. J. YOUNG, *Sharbot Lake, Ontario, Can.*

A Winter Record for the Hermit Thrush (*Hylocichla guttata pallasii*) in Eastern Massachusetts. — This species is sufficiently rare in winter in Massachusetts to make it of interest to record one seen by the writers in Longwood, Brookline, Mass., January 1, 1904. The bird was not at all shy, and was observed for several minutes within a distance of a few feet, so that its identification was easily determined. It was hopping about in a clump of trees and bushes at the edge of a small pond, now and then uttering its characteristic *chuck*.

Another Hermit Thrush, or possibly the same one, was observed at Chesnut Hill, Mass., on January 8, 1904. It was watched for several minutes while it was picking at a small crust of bread which lay on the snow. As the two localities mentioned are at least three miles apart, it is impossible to tell whether this was the same bird as the one seen on January 1 or not. Messrs. Howe and Allen in their 'Birds of Massachusetts,' p. 95, give only three winter records for the Hermit Thrush for this State.—FRANCIS G. AND MAURICE C. BLAKE, *Brookline, Mass.*

Two Additions to the Bird Fauna of Kansas.—I wish to record the addition of two species to the bird fauna of Kansas. They are as follows:

1. **PARASITIC JÄGER** (*Stercorarius parasiticus*).—A young male was captured along the Kansas River near Lawrence on October 10, 1898, by Banks Brown. The specimen was mounted by Leverett A. Adams and is now in the museum of the University of Kansas. This species not having been previously reported as "seen" or "likely to occur in Kansas" is an absolute addition to our avifauna.

2. **WHITE-WINGED CROSSBILL** (*Loxia leucoptera*). This species was inserted in my first editions of 'The Birds of Kansas,' in 1872, on the authority of Dr. T. M. Brewer, and was omitted from my fifth edition (May, 1903) because its occurrence in Kansas had not been verified by actual captures. I am glad to report two recent captures. The first was that of an adult male in fall plumage, shot by Leverett A. Adams near Lawrence, in Douglas County, November 4, 1899. This specimen, mounted by E. D. Bunker, is now in the museum of the University of Kansas. The second capture was that of a young male, taken at Hays City in western Kansas, September 15, 1902, by C. W. Miller, who has the specimen in his own collection.

These two additions, together with the three recorded in the January number of 'The Auk,' increase to 347 the number of species and varieties of birds personally known to me as occurring in Kansas.—F. H. SNOW,
Lawrence, Kan.

Mortality Among Young Birds, Due to Excessive Rains.—During the summer of 1903, prolonged dry and warm weather, lasting through the greater part of May and the first week of June, was followed by an excessive rainfall. From June 6 to 14, inclusive, I was at Demarest, N. J., and from the evidence that there came under my notice, I became convinced that the mortality among young birds in the nest was far beyond normal, owing to the heavy rains which so closely succeeded each other.

Wishing to see how extensive this abnormal mortality might be, I wrote to some thirty ornithologists in various sections of New York, Pennsylvania, and New Jersey, inquiring regarding this subject. To a number who furnished interesting information, I am greatly indebted, as well as to others who courteously replied to my queries, stating that they were unable to furnish any information on the subject.

The deductions which may be gathered from the data thus collected are, first, that there was, at least in some sections, an unusually heavy mortality among young birds as a result of exposure, cold, and in some cases drowning, due to heavy rains, as well as an unusually large number of nests with eggs which were deserted because of the eggs becoming wet and chilled; second, it would appear that in other sections such mortality was not evident. This may be due to the difference in the predominating species of the different localities, or to difference in environment of nests, in the sections covered by the observers so reporting.

A few examples of cases coming under my notice at Demarest, are as follows: on June 7 a Field Sparrow's nest was found in a weed clump in a meadow, containing three young. On the 13th three lifeless, water-soaked bodies lay in the nest, which the birds would have left in a few days. On June 11 a Kingbird's nest was found just completed, and this nest was subsequently deserted by the birds before any eggs had been laid, apparently as a result of its continued soaked condition. On the same date, and in the same orchard I examined a Bluebird's nest, in a knot-hole in an apple limb, their second nest for the season, and containing at this time four eggs. On July 4 I visited this nest again, and the wet, decaying, and deserted eggs were still in the nest, which had evidently been partly filled with water.

On June 13 I photographed a nest of four young Chipping Sparrows, in a grapevine, close to a house. The situation of this nest seemed ideal for withstanding the weather, a number of large leaves sheltering it very well. The young were then almost ready to leave the nest. On the morning of the 15th, following a day and night of hard rain, these birds were found dead.

Mr. S. H. Chubb, of this city, reported to me a case on Staten Island, of the drowning out of a family of young of the Tufted Titmouse.

Mr. S. N. Rhoads wrote me that though he could not doubt that there had been an unusual mortality among young birds owing to the heavy rains, he had not, in his limited field work, seen any evidence of it. Mr. William B. Burke, writing from Rochester, N. Y., said that this subject had been brought up at a meeting of the Ornithological Club, and that the consensus of opinion was "that there had been no perceptible loss among young birds as a result of excessive rains in this region." He added that living adjacent to a ninety acre beech wood, he had seen no evidence of unusual mortality among young birds, and that friends from Canada reported that there was no apparent loss there.

Mr. Josiah H. Clark, of Paterson, N. J., reported that at Crystal Lake the prolonged rains flooded a Bluebird's nest in a hole in a stump, causing the birds to desert the four eggs that the nest contained. He also cited the case of a House Wren's nest which had been flooded and deserted in the same manner.

Mr. T. H. Jackson, of West Chester, Pa., writes: "Although I kept no record, I noticed that a great many nests were broken up by the cold rains during the early summer of 1903. Approximately I should say at least fifty percent among the smaller species failed to mature in the nests. Am sorry I can not give you more accurate information."

Mr. John Lewis Childs, of Floral Park, N. Y., writes that on Long Island he had been unable to find any evidence of unusual mortality among young birds. He further adds, however: "At a recent visit with John Burroughs up the Hudson Valley, I learned that he had examined a great many nests this fall, and in a large number of them found the remains of young birds, and he is of the opinion that large numbers of nestlings died, perhaps as high as twenty-five percent."

I have in the past fifteen years examined a very considerable number of nests, and it has been my experience that normally it is an unusual thing to find dead young in the nest. I should say that each such find the past season was so much evidence indicating an unusual mortality, and I am of the opinion that could such data all be gathered, it would be found that the effect of the unusual season of 1903 on bird life was very marked.—B. S. BOWDISH, *New York City*.

The Rapidity of the Wing-Beats of Birds.—Attention may well be directed to a neglected phase of the problem of flight, for while foreign observers have devised graphical methods for measuring wing movements too swift for discernment by the human eye, little or nothing is known about our birds of slow flight, in which it is possible to count the wing-beats. On several occasions, I have had opportunity for watching Herring Gulls (*Larus argentatus*) following in the wake of a steamboat running at the rate of ten or twelve miles an hour, and on calm days I find the wing-beats in this species average about one hundred and eighty to the minute. Varying conditions make difficult even such simple observations as these; but the coöperation of many observers in this almost untouched field may some day furnish valuable data. Laboratory experiments abroad, with harnessed birds, show that the wing-beats of a Sparrow are 780 a minute, of a Duck, 540, of a Pigeon, 480, and so on, while at home we only know that wings are too swift for most cameras. The subject is a large one and I merely wish to stimulate interest in it, by thus lightly touching upon it.—JONATHAN DWIGHT, JR., M. D., *New York City*.

A Correction.—In 'The Auk,' Vol. XIX, No. 3, July, 1902, p. 331, in the first line, "Faxon and Allen" should read Faxon and Hoffmann.—REGINALD HEBER HOWE, *Concord, Mass.*

Audubon's 'Ornithological Biography.'—I have just purchased a copy of the above work, the first volume of which bears the imprint,
Philadelphia : | Judah Dobson, Agent, 108 Chestnut Street ; | and |
H. H. Porter, Literary Rooms, 121 Chestnut Street. | MDCCXXXI.

Coues's Bibliography makes no mention of this imprint, nor can I find another set the first volume of which bears such a one.—REGINALD HEBER HOWE, JR., *Concord, Mass.*

Delaware Bird Notes.—A hasty visit to Lewes, Del.—Cape Henlopen—on February 5, 1904, admitting of but an hour's walk across the frozen marsh and barely into the cedars and pines bordering the ocean sufficed to note the following, amongst the species:—Myrtle Warblers, numerous; Robins and Bluebirds, abundant; several Savannah Sparrows, a flock of 18 Snow Buntings, one Catbird, a single Brown-headed Nuthatch, and two Red-breasted Nuthatches.—C. J. PENNOCK, *Kennett Square, Pa.*

Bird Notes from Shelter Island, Long Island, N. Y.—LESSER SCAUP DUCK (*Aythya affinis*).—This duck has been noted in this vicinity several times in midsummer. A specimen was shot by a friend of mine on Aug. 18 of last year (1903). A pair were seen by Dr. Braislin and myself at Napeague Harbor on June 20, 1902. None of these were crippled birds, and all possessed normal powers of flight, so that their failure to migrate with their fellows was surely owing to no physical disability.

WILSON'S WARBLER (*Wilsonia pusilla*).—A specimen was taken on August 22, 1903,—the earliest I have ever observed it in the autumnal migration.

WATER THRUSHES (*Seiurus noveboracensis*) arrived on the same date as the last.

WILLET (*Symphearia semipalmata*).—A single specimen was taken Aug. 22. This bird has become very rare in this vicinity of late years.

MARYLAND YELLOWTHROAT (*Geothlypis trichas*).—A fine male of this species was noted and watched for some time on November 13, 1903. His late stay was owing, no doubt, to the congenial surroundings, formed by a thick growth of a species of wild honeysuckle, covering the ground and low bushes in a sheltered spot, remaining green late in the winter, and containing many warm and sunny sheltered nooks.

PINE GROSBEAK (*Pinicola enucleator*).—A few of these rare visitors from the north have been about this winter. A single one was seen November 28, 1903. I received a pair to mount, shot on Dec. 22, the male in the full red-washed plumage, the female gray. They were found feeding around a garbage heap near the back door of a dwelling house, and were very tame. Two more were seen near the same place, but not taken, on January 3, 1904.

HERMIT THRUSH (*Hylocichla guttata pallasii*).—Very scarce during their usual migration dates. For some unaccountable reason their movements to the south seem to have been postponed so long that, by the advent of severe weather, many of them came to grief. A single specimen was noted on Nov. 13, 1903; next seen on Dec. 26, and again on Dec. 31. The weather was then very cold, the ground covered with snow, and the specimens were in an emaciated condition. The last chapter in the tragedy was revealed by a specimen found under the edge of a sheltering embankment, frozen to death, on January 5, 1904. The ground was then covered with snow, about a foot deep on the level, and traveling was very hard, so that I covered only a small section of country during my observations, but, judging by the several instances in which I noted the birds, many hundreds must have perished, in the aggregate.—WILLIS W. WORTHINGTON, *Shelter Island Heights, N. Y.*

Notes Concerning Certain Birds of Long Island, N. Y.—*Puffinus borealis*. Mr. Andrew Chichester shot two birds (♂ and ♀) of this species on the ocean some distance off Fire Island Inlet, on Oct. 4, 1902, and sent them to me in the flesh.

Cathartes aura. Mr. Robt. Peavey, who killed the two specimens of

this species before recorded by me, shot two additional specimens, one of which he has presented to the Museum of the Brooklyn Institute of Arts and Sciences.

Anas obscura rubripes. Soon after the publication of Mr. William Brewster's description of this newly defined subspecies I made inquiries regarding the presence of a Black Duck on Long Island answering the description of *rubripes*. I found that the difference in external characteristics was sufficient to have attracted the notice of certain sportsmen and baymen. Mr. Brewster found that the red-legged form is well known to baymen in Massachusetts and that it is regarded by them as a distinct variety of the Black Duck. I find substantially the same facts to apply on Long Island. In answer to my request, from one of whom I had made inquiries, that specimens of this variety of Black Duck be furnished me, I received a few days later two fine specimens answering in every respect to Mr. Brewster's description. This subspecies is, therefore, here-with definitely recorded for Long Island.

Anas penelope. A specimen of the European Widgeon was killed on Gardiner's Island, Feb. 5, 1902, by Hiram Miller, of Springs. The capture of this bird was reported to me by Mr. Ivan C. Byram, a taxidermist of Sag Harbor, who mounted the bird and who identified it. To meet the question of possible error in identification I requested and received from Mr. Miller the following description: "Wing patch green; longer wing feathers and tail dark brown; head and neck chestnut shading to buff on forehead; breast gray shading to white belly; under tail-coverts black; legs and feet dusky lead." He adds: "There was another killed the autumn before I killed mine here, and another this autumn here." He states that the specimen in question was killed from a large flock of Baldpates.

Aythya valisneria. The Canvas-back is sufficiently rare on Long Island to be worthy of record. It is perhaps unnecessary to say that the not infrequent reports of large flocks of Canvas-backs on Long Island sent from gunning resorts to the daily press, with the evident desire of attracting the city sportsmen thither, may safely be set down to the presence of its near relative, the Red-head. I have never interrogated a reliable Long Island gunner, bayman or guide, who had ever observed a flock of any considerable number of Canvas-backs on Long Island. Abundant as this bird is on the Chesapeake, its rarity on Long Island is very firmly established. Mr. Andrew Chichester, a veteran gunner of Amityville, sent me a pair (δ and φ) of fine, fresh birds shot by his son Arthur at that place, March, 1903.

Chen hyperborea nivalis. A Goose (φ im.) sent in the flesh, by Mr. Ivan C. Byram of Sag Harbor, was shot Nov. 18, 1903, at Noyac, a hamlet three miles west of Sag Harbor, by Cornelius Bennett. I refer the bird to *C. hyperborea nivalis*, since it more nearly approaches the description of the immature of this species than that of *C. caerulescens* in the same stage of plumage.

As the bird represents an interesting phase of plumage the following details are given: Top of head and back of neck slaty black shading to lighter on sides and in front except some of the feathers of the fore neck which are dark like the former. The tips of some of the (new) dark feathers of this region are whitish. Back, grayish blue, the tips of these broad feathers edged with gray. Lower back and rump and upper tail-coverts white. Wing-coverts grayish blue to fuscous and edged with white. Tail fuscous gray, edged broadly with white. Chin, sides of head, neck, breast and belly washed with bright ochraceous buff, most deeply so on the head. Length, 29.50; wing, 16.25; tail, 5.50; bill, 2.50; tarsus, 3.12.

Crymophilus fulicarius. Three Red Phalaropes (females) which struck the Montauk Point Light were picked up at the foot of the tower, Nov. 27, 1902, by Capt. James J. Scott, the Keeper of the Lighthouse, and kindly forwarded to me.

Numenius borealis. A bird of this species (δ) was shot at Rockaway Beach Sept. 14, 1902, by Mr. Robt. L. Peavey of Brooklyn and is now in his collection of mounted birds, and has been examined by the writer. Mr. W. F. Hendrickson in a recent communication to Mr. William Dutcher referred to a strange bird which was shot from a flock of about fifteen as they were passing along the beach, near Zach's Inlet Life Saving Station on August 29, 1903. From the description furnished Mr. Dutcher was inclined to believe the bird one of this species and referred the matter to me for investigation. The captain of the life saving crew, Philip K. Chichester, who saw the bird, is certain the bird was an "English Fute," that is, an Eskimo Curlew. The life-saver is an old-time gunner who in former times saw the bird in much greater numbers than it is now known to occur anywhere. There seems to me no reasonable doubt that this bird, which unfortunately was promptly plucked and eaten, was also a specimen of the Eskimo Curlew.

Sturnus vulgaris. As a fulfillment of predictions that the Starling would gradually widen its range on Long Island, it is perhaps worth while to note that a specimen has been taken as far east as Hicksville. Mr. Lott, a taxidermist of Freeport, informed me that a bird strange to him had been sent for mounting, with a report that it had been shot at Hicksville. On examining the specimen I found it to be a Starling.—
WILLIAM C. BRAISLIN, M D., Brooklyn, N. Y.

British Columbia Notes.—The following records were made at Comox, Vancouver Island, B. C., during the latter part of 1903 and early part of 1904.

Larus barrovianus. POINT BARROW GULL.—I shot an immature specimen of this gull in Comox bay, on the 15th December, the first record for the Province.

Sterna hirundo. COMMON TERN. Two adults taken on the 24th September by Lieutenant E. N. Carver, R. N.

Branta bernicla. BRANT.—On the 13th December I noticed a bunch of

six Brant that kept separate from the large numbers of Black Brant in Comox harbor; after a hard bit of work I managed to kill one of them, which proved to be an adult female of the Atlantic species. The others were undoubtedly an old male and three young of the same species as they all looked very light colored. The specimen secured is in every way typical *bernicla*, with interrupted collar, and sharply defined black breast, against the pale grayish lower surface. It was very fat.

I have since found that the Eastern Brant is a fairly common migrant on the Pacific Coast. Since shooting the first specimen, I have killed seven others, and have seen a number of small bands that, as a rule, keep separate from the Black Brant.

I should say about eight percent of the Brant in Comox bay are the Eastern species. Only once have I killed both species out of the same flock. There seems to be no tendency to intergradation, unless the uniting of the neck patches in one *bernicla* might be so considered. This was an adult male, in all other respects typical *bernicla*, and the collar was barely united by the slightest white tipping.

Actidromas acuminata. SHARP-TAILED SANDPIPER.—On the 4th October I saw a Sharp-tailed Sandpiper with three Pectoral Sandpipers near the mouth of Campbell River. I had no gun, so was unable to secure it, but as I was within four yards, was able to identify it with certainty. It was a young of the year with white supercilium and throat, and warm buffy, slightly streaked jugulum.

Pelidna alpina. DUNLIN.—A typical Dunlin taken the 5th December out of a small troop of *pacifica*. This is a bird of the year with a few feathers of first plumage left in upper parts. The crown and foreneck are much more conspicuously streaked than in *pacifica*, the pectoral band being nearly as heavily streaked as in *maculata*. Measurements taken in the flesh:—♂, Length, 7.75; wing, 4.60; culmen, 1.35.

Charadrius dominicus fulvus.—PACIFIC GOLDEN PLOVER.—Whether typical *dominiclus* occurs on the Pacific coast is doubtful, but I have never before taken such absolutely typical *fulvus* as some that I collected here on and after the 3rd November. These are bright enough for the European species and I almost expected to find the axillars white. Two taken the 4th November had already acquired some of the feathers of the summer plumage on the mantle; these are broadly margined, not spotted, with bright yellow.

Falco islandus. WHITE GYRFALCON.—A fine adult female White Gyrfalcon was brought to me on the 4th December. It had been killed by a boy with a 22 rifle.

Falco peregrinus anatum. DUCK HAWK.—So far this is the only species of Peregrine I have been able to secure here. I expected *pealei* to be the common form on Vancouver Island.

Nucifraga columbiana. CLARK'S CROW.—I shot an adult female here on the 18th February. This is a very rare straggler to Vancouver.

Vireo huttoni obscurus. ANTHONY'S VIREO.—This vireo evidently

winters here, as I took a specimen the 4th December. In life it is impossible to distinguish it from a Rubycrest, and like that bird associates with flocks of Chestnut-backed Tits.—ALLAN BROOKS, *Comox, Vancouver Island, B. C.*

The Ipswich Sparrow, Kirtland's Warbler, and Sprague's Pipit in Georgia.—Along the eastern shore of Cumberland Island, Georgia, are long stretches of sand flats and dunes covered with a scattering growth of beach-grass. On April 14, 1903, in one of these spots, about two miles south of the inlet separating Cumberland Island from Little Cumberland Island, I flushed and shot an Ipswich Sparrow (*Passerculus princeps*). It proved to be a female, very fat, and had not quite completed its spring moult. This I believe is the most southern point from which this species has been reported, and the date (April 14) is rather late to find this bird so far from its summer home.

On April 12, 1902, I shot a female Kirtland's Warbler (*Dendroica kirtlandii*) from a small water oak standing near the border of an old field at the north end of Cumberland Island. Its large size at once attracted my attention, as it leisurely and silently hopped about among the branches.

On January 16, 1903, near the north end of Cumberland Island, I flushed a small light colored bird that I suspected to be Sprague's Pipit (*Anthus spragueii*). It flew but a short distance, but upon my attempting to approach it at once took flight, and joining a Common Pipit that chanced to be passing at the time was soon lost to view. Its mate somewhat resembled that of the Common Pipit, yet was readily distinguishable from it. Jan. 19, I again found it in the same locality and shot it, thus confirming my conclusions as to its identity. My next opportunity to look for these birds was March 27, when I found three and secured two of them. From this time until April 3, several more were noted and six specimens secured. They were all found singly among the short grass on the dry sandy flats between the marsh and the ocean, and did not appear to mingle with the Common Pipits, which were common in the vicinity. I did not see any perform the towering flight which is said to be so characteristic of this species. Nine specimens in all were taken on the following dates: January 19, one; March 27, two; March 28, three; March 30, two; April 3, one. All were females, and with the exception of the one taken January 19, were in the prenuptial moult.—A. H. HELME, *Miller Place, N. Y.*

RECENT LITERATURE.

Coues's 'Key to North American Birds,' Fifth Edition.¹—"The present work constitutes the completion of Dr. Coues' life-long labors on behalf of the science of ornithology. In preparing it for publication the publishers have suffered extraordinary expense, difficulty, and delay by the loss of Dr. Coues' assistance in the proof-reading and illustrating of the book. The manuscript was finished but shortly before his death, and though fortunately complete in this form, was left in such shape as to present almost insuperable difficulties to the compositor or proof-reader, who lacked the author's direction and supervision" (Publisher's Preface, p. iii).

About four years elapsed between the death of Dr. Coues and the appearance of the Fifth Edition of the 'Key.' Doubtless if Dr. Coues had lived to see the work through the press, and it could thus have received his final touches in the proof, it would not have been materially different from what it is at present, but it must have undergone many slight modifications, and have been left fully abreast of the subject, instead of four years behind, as now. The publishers, under the circumstances, were most fortunate in securing the services of Mr. J. A. Farley, to superintend the carrying of the work through the press, and their acknowledgment of their own and the reader's indebtedness to the "pains-taking care,.... scholarly zeal and conscientious spirit of fidelity and accuracy" with which he performed the task, is most certainly a deserved tribute to his editorial skill and care.

¹ Key | to | North American Birds. | Containing a concise account of every species of Living and Fossil | Bird at present | known from the Continent north of the Mexican and United States Boundary, inclusive of Greenland and Lower California. | With which are incorporated | General Ornithology : | an outline of the Structure and Classification of Birds; | and | Field Ornithology, | a Manual of collecting, preparing, and preserving Birds. | The Fifth Edition, | (entirely revised) | exhibiting the Nomenclature of the American Ornithologists' Union, and including | descriptions of additional species. | In Two Volumes. | Volume I. | By Elliott Coues, A. M., M. D., Ph. D., | Late Captain and Assistant Surgeon U. S. Army and Secretary U. S. Geological Survey; Vice-President of the American | Ornithologists' Union, and Chairman of the Committee on the Classification and Nomenclature of North American Birds; | Foreign Member of the British Ornithologists' Union; Corresponding Member of the Zoölogical Society | of London; Member of the National Academy of Sciences, of the Faculty of the National | Medical College, of the Philosophical and Biological Societies of Washington. | Profusely illustrated. | [Vignette.] Boston: | Dana Estes and Company. | 1903.—Roy. 8vo, Vol. I, pp. i-xli + 1-535, col. frontispiece, portrait of author, and text figs. 1-353; Vol. II, pp. i-vi + 537-1152, col. frontispiece, and text figs. 354-747.

The 'Key' was first brought out in 1872 (1st ed.); a revised and greatly enlarged edition (2d. ed.) appeared in 1884, so different from the first as to be essentially a new work. There was a reissue of this, printed from the same plates (3d. ed.), in 1887, with the addition of an Appendix; and another reprint from the same plates (4th ed.) in 1890, with the addition of a second Appendix. The present (5th) edition (Dec. 1903), with the systematic portion rewritten and greatly augmented, is thus in reality only the second revised edition of the original 'Key' first issued in 1872. The last edition is so radically different from the second and subsequent reprints that it is practically a new work. While the plan and general make-up are the same, and while Part I, 'Field Ornithology,' and the greater part of Part II, 'General Ornithology,' are textually the same, Part III, the 'Systematic Synopsis,' constituting the main body of the work, is wholly rewritten and greatly enlarged; the classification and arrangement are somewhat altered, and the nomenclature is revolutionized, to conform with that of the A. O. U. Check-List, the author, when necessary, often waiving his own opinions and preferences for the sake of conformity with the Check-List. The change in the number and character of the illustrations is also conspicuous, many of those used in the earlier editions having been discarded and hundreds of new ones added, most of them drawn expressly for the work by Mr. Fuertes, the general excellence of which is thus sufficiently assured. In consequence of the addition of about 250 pages of new matter, the 'Key' now appears in two volumes (continuously paged) instead of one, which, from the point of convenience for the user, is greatly to be regretted. If the same weight of paper had been used as in the 2d-4th editions the increase in bulk, in a book already so large, would not have been a material disadvantage, and would have been more than offset by the convenience of having the index always at hand instead of at the end of a second volume.

Volume I opens with a new frontispiece, a beautifully colored plate of the Starling, by Fuertes, in place of the former colored illustration of the 'Anatomy of the Pigeon.' The 'Publisher's Preface' is followed by the prefaces to the fourth and third editions, and the 'Historical Preface' (pp. xi-xxx, which includes the preface to the second—1884—edition), all naturally without change. Next stands the contents, followed by a portrait of the author, and Mr. D. G. Elliot's memorial address, both from 'The Auk' for January, 1901. Part I, 'Field Ornithology' (pp. 1-58), is reprinted without change. In Part II, 'General Ornithology' (pp. 59-241), the first forty-four pages have been reset, to admit of various minor changes, partly for literary improvement, partly for needed changes in technical names, and partly for the insertion of some six pages of wholly new matter, including a characteristic paragraph (p. 80) on the A. O. U. Code of Nomenclature. Pages 82-89, the section on 'The Feathers or Plumage,' have been rewritten and much new matter added, while pp. 92-94 are also mostly new, and include about two pages of new text on 'Aptosochromatism,' much of which is positively erroneous and had bet-

ter have been omitted. Dr. Coues invented the term 'aptosochromatism,' and was peculiarly sensitive to criticism of its significance and use, as from time to time defined and applied by him, he finally looking upon such criticism almost as a personal grievance. This new exploitation of the subject abounds in positive misstatements and erroneous inferences.

Pages 113-235 are apparently from the original plates, without change. The 'Artificial Keys' and 'Tabular View' (pp. 236-241) have been recast and considerably modified, through changes in the names of groups and the admission of one new order, 6 new suborders, 7 new families, and the reduction of the subfamilies from 77 to 71, through the raising of 6 subfamilies to the grade of families. This of course implies considerable change in the classification followed in Part III, in comparison with previous editions.

Part III, 'Systematic Synopsis of North American Birds,' has been rewritten and greatly altered, not only through the admission in their proper sequence of the many species and subspecies added to the North American list of birds during the sixteen years between 1884 and 1900, but through many changes in classification and nomenclature involving the status of subgeneric and generic groups, as well as the status and relationships of the higher groups. As an illustration of the general character of these changes, we may take the family Turdidae. In the 1884, and later editions down to the present, it included six subfamilies, as follows: Turdinæ, Miminæ, Cinclinæ, Saxicolinæ, Regulinæ, and Polioptilinæ. In the present edition the Turdidae include the two subfamilies Turdinæ (= Turdinæ, 1884), and Myiadestinæ, formerly placed under Ampelidæ; while, of the other subfamilies, Miminæ is transferred to the Troglodytidæ; Cinclinæ is raised to the rank of a family; Saxicolinæ is merged in Turdinæ; Regulinæ and Polioptilinæ are placed in a separate family Sylviidæ. There are other similar changes in other families of the Passeres, involving new associations of groups. Among changes of names, it may be noted that Sylvicolidae now becomes Mniotillidae, — only one among many changes in the names of higher groups, including those of all grades from subfamily to order.

To continue the comparison further, all of the species included in the Turdinæ of the earlier editions were placed under the single genus *Turdus*, divided into the three subgenera *Turdus*, *Merula*, and *Hesperocichla*. In the present edition *Merula*, *Hesperocichla*, *Turdus*, and *Hylocichla* stand as full genera, and *Saxicola*, *Sialia*, and *Cyanecula* are transferred from other associations to the Turdinæ. The species and subspecies formerly placed under *Turdus* are now distributed among four genera, and the number and status of the species and subspecies are in conformity with the A. O. U. Check-List as it stood at the time the revision of the manuscript for the new 'Key' was completed.

When the 1884 'Key' was published there was no A. O. U. 'Check-List of North American Birds,' nor any A. O. U. 'Code of Nomenclature.' It therefore reflected the close of a preceding period in the history of

North American ornithology ; and unfortunately continued to do so, as regards both classification and nomenclature, until the publication of the present revised edition. It is therefore gratifying to find how closely this new edition of a work that has done so much for the younger generation of ornithologists accords in both these features with the latest edition of the Check-List and its supplements down to the year 1899. There are discrepancies here and there between the two in the matter of higher groups—as under the 'Order Picariae,' for example—and occasionally in the recognition and designation of species and subspecies, but they are surprisingly few, in view of the author's declared independence in matters of expert opinion. (See Preface to the third edition, p. ix of the present work.) Apparently very few forms recognized by the A. O. U. Committee prior to 1900 are here omitted, while many the Committee had declined to recognize, or had not yet passed upon, are also admitted. A large number of groups rated by the A. O. U. Committee, down to the year 1900, as subgenera are given full generic rank, including not only those thus raised by the Committee itself in 1903, but others, many of which the Committee will doubtless soon accord the rank of genera. A few subgenera additional to those of the A. O. U. Check-List are also recognized, of which four appear to be new, namely : *Stellerocitta* (p. 495), a subgenus of *Cyanocitta* for the Steller's Jay group; *Sieberocitta* (p. 499) as a subgenus of *Aphelocoma* for the Arizona Jay group; *Dilopholius* (p. 963) and *Viguacarbo* (p. 965) as subgenera of *Phalacrocorax* for, respectively, the Double-crested Cormorant and the Mexican Cormorant.

In respect to matters of nomenclature, and recent additions to the list of North American birds, the new 'Key' has been brought down to date through Mr. Farley's carefully prepared 'Appendix' (pp. 1145–1152), in which he has given all the additions made in the Tenth, Eleventh, and Twelfth Supplements to the Check-List (July, 1901–July, 1903), and arranged, in parallel columns, all changes from the nomenclature of the 'Key' made by the A. O. U. Committee since Dr. Coues finished his work on the manuscript.

The additions in the text of Part III, aside from those above noted, consist in the amplification of many of the diagnoses ; many essential modifications in the statement of ranges, in conformity with our increased knowledge of such matters ; the addition of bibliographical references, and much critical and historical comment on questions of nomenclature—matters almost wholly excluded from former editions ; the addition of many—perhaps too many—vernacular synonyms ; and the more elaborate and often greatly extended characterizations of the higher groups. These are considered from the point of view of the birds of the world, and the relationships of their different components are stated with masterly clearness and comprehensiveness. In illustration of this the 'Order Picariae' may be especially cited, where (pp. 537–543) the group as a whole and its subdivisions are considered at length. Although he retains the group, he says: "I have no faith whatever in the integrity of

any such grouping as 'Picariae' implies; but if I should break up this conventional assemblage, I should not know what to do with the fragments; . . . The A. O. U. ignores the major group, and presents instead three orders—Coccyges, Pici, and Macrochires. With this procedure I have no quarrel, as the three are precisely coincident with my three suborders, Cuculiformes, Piciformes, and Cypseliformes."

Part IV, 'Systematic Synopsis of the Fossil Birds of North America' (pp. 1087-1097), brings this important feature of the work also down to the close of the year 1899. An index of 48 pages, three columns to the page, completes this masterpiece of mature ornithological work, which alone would long keep green the memory of its gifted author.

In the way of criticism, we note with some surprise the fact that the matter relating to the general anatomy of birds is left as published in 1884, notwithstanding the many important contributions to the subject since that date. We cannot help feeling that if Dr. Coues had lived to carry the new 'Key' through the press this part of the work would also have received due revision at his hands. In regard to the publishers' share in the work, they have certainly been liberal in their expenditure for illustrations, but unfortunately the paper selected for the work is poorly adapted for the reproduction of half-tones in the text, and many of Mr. Fuertes's beautiful drawings have suffered sadly in the printing. Also, as already said, it is a decided inconvenience to have the 'Key' issued as a two-volume work, and it is to be hoped that when the next edition is called for it will be found practicable to use both a lighter-weight and a smoother-finished paper, so as to give greater sharpness to the half-tones and at the same time render it practicable to issue the work in a single volume. If the two volume form should seem necessary, it would be a great convenience to have the index inserted in both volumes.

In regard to the 'Key' itself, it is a well-known and an old favorite, whose thirty years of practical usefulness have won for it unstinted and well-merited praise, and in its new form will prove for many years to come a boon alike to the amateur and the professional student of North American birds. The 'Key' of 1872 was an innovation and an experiment in ornithological literature; its practicability was evident from the outset, and it proved to be the forerunner of almost numberless successors of 'key' manuals in various departments of zoölogy. The author's final revision of this greatest of his many contributions to ornithological literature will make a new generation of bird students his debtors and admirers.—J. A. A.

Chapman's 'Color Key to North American Birds.'¹—The sole purpose of the present book, according to the author, is "the identification of

¹Color Key to | North American Birds | By | Frank M. Chapman | Associate Curator of Ornithology and Mammalogy | in the American Museum of

the bird in the bush,"—that is, to assist the many who aspire to a knowledge of the names of the wild birds they see about them, but who are deprived of access to specimens. For this purpose tinted figures, giving in color those markings which most quickly catch the eye, are given on the margin of the pages opposite the descriptions, which latter are brief, giving only the most prominent characteristics of the species and subspecies, and (in smaller type) a concise statement of their ranges, without biographical matter. A short introduction tells 'How to learn a Bird's Name' and 'How Birds are Named,' followed by a 'Synopsis of Orders and Families of North American Birds' (pp. 9-40), illustrated with figures of bills, feet, heads, etc., mostly life-size. Then follows the 'Color Key' to the species (pp. 41-255), with full length colored figures in the text. The orders are arranged in the sequence of the A. O. U. Check-List, but the species within the orders have been grouped according to their color markings, for convenience of illustration. Each species, however, is designated by the A. O. U. number, and at the close of the 'Key' is a 'Systematic Table' (pp. 257-289), giving the classification and nomenclature of the A. O. U. Check-List, including both the common and the scientific names. The drawings are in every way creditable, but the coloring is not put forth as giving "perfect reproductions of every shade and tint of the plumage of the species, but aims to present a bird's characteristic colors as they appear when seen at a distance." The author and the artist are both to be congratulated on the very satisfactory manner in which they have performed their respective tasks, whereby the student of 'birds in the bush' has been presented with seemingly as efficient an aid as can readily be conceived. The paper and presswork, however, are not satisfactory, and it is hoped will be materially improved in the later editions, for which there will most surely be demand.—J. A. A.

Dawson's 'The Birds of Ohio.'—The title-page¹ of this excellent work

Natural History | Author of "Handbook of Birds of Eastern North America," | "Bird-Life," Etc. | With Upward of 800 Drawings | by | Chester A. Reed, B. S. | New York | Doubleday, Page & Company | 1903.—8vo, pp. vi+312, colored frontispiece, and about 800 text cuts, the greater part colored.

¹ The Birds of Ohio | a complete, scientific and | popular Description of the 320 Species of Birds | found in the State | By | William Leon Dawson, A. M., B. D. | With Introduction and Analytical Keys | by | Lynds Jones, M. Sc. | Instructor in Zoology in Oberlin College. | Illustrated by 80 plates in color-photography, and more than 200 | original half-tones, showing the favorite haunts of the | birds, flocking, feeding, nesting, etc., from photo- | graphs taken by the author and others. | Sold only by subscription | Columbus | The Wheaton Publishing Co. | 1903 | All rights reserved.—4to, pp. i-xlvii+1-671, 80 three-color process plates and 200 + half-tone text cuts. Author's edition, 1000 numbered autograph copies, full morocco, full gilt.

very fully and correctly indicates its general character—a copiously illustrated, scientifically trustworthy popular manual of the birds of Ohio, with analytical keys, and colored figures of eighty species. The scope of the work "is strictly Ohioan," and the birds are described "as any one in Ohio might see them," although something is generally said of their habits and range as found outside of Ohio. The nomenclature is that of the A. O. U. Check-List and its supplements, down to the last of the series, but the order of sequence is reversed, the Passeres, and of these the Raven, being placed at the head of the list and the Loons at the end. The number of species authentically recorded for the State, and hence here formally treated, is 320; descriptions are given of 13 others, "believed to occur or to have occurred in Ohio," forming a 'hypothetical list'; which is followed by a "conjectural list" of 13 more, reported from adjacent States and supposed, with good reason, to occur "at least casually." Many of these will doubtless be added, sooner or later, to the birds of the State on the evidence of actual capture within its borders.

Following the author's preface and the introduction are the analytical keys, prepared by Professor Lynds Jones, of the orders, families and species, occupying pp. xxiii to xlvi. The main text gives a short description, in small type, of each species, including its nest and eggs, and its range, both within and outside of the State, and, in larger type, a short, well prepared biographical account, having special reference to the species as a bird of Ohio. The volume closes with three appendices, the first two of which consist respectively of the 'hypothetical' and 'conjectural' lists already mentioned, while the third, 'Appendix C' (pp. 647-660), gives migration tables "for the approximate latitudes of Cincinnati, Columbus and Cleveland." These are arranged in the order of the A. O. U. Check-List, and are based partly on the author's own observations and partly on those of other well known observers, as Henninger, Jones, Wheaton, and Moseley, as duly explained. There is also a good index.

As regards plan, literary execution, typography and general make-up, Dawson's 'The Birds of Ohio' is an exceptionally attractive volume and is entitled to high praise as a trustworthy popular manual of the birds of the region to which it relates. There is, however, one disappointing feature, and that is the character of the colored plates, for which the three-color process is not wholly to blame. When we state that they are a selection of eighty of the best of a series of some two hundred or more that were available, and that this series was originally published in a Chicago bird magazine, variously known at different times as 'Birds,' 'Birds and Nature,' etc., and also already used elsewhere as book illustrations, most bird students will be sufficiently aware of their character without further comment. While the greater part, and perhaps all, of those used in the present volume are sufficiently approximate to nature to be serviceable as an aid in identifying the species represented, very few of them are pleasing, owing mainly to the bad mounting of the specimens selected for photographing. Such illustrations may be accepted as perhaps much

better than none; and we fancy that this fact, and their comparatively small cost, accounts for their presence in a book worthy of a far better accompaniment. The half-tones in the text, on the other hand, are for the most part well reproduced, well selected, and appropriate to the text, giving characteristic views of the haunts of many species, as well of many nesting sites, nests and eggs, and of living birds.—J. A. A.

Mrs. Bailey's 'Handbook of Birds of the Western United States,' Second Edition.—The "second edition, revised"¹ differs from the first mainly through a revision of the matter relating to the Horned Larks (genus *Otocoris*, pp. 266–269), which has been rewritten and brought down to date, and the addition of Addenda (pp. 486–488) giving a list of the alterations in the names of western birds made by the Nomenclature Committee of the A. O. U. since the publication of the first edition in 1902, and also correcting the few omissions and errors of the first edition that could not readily be made in the text. The generous commendation given the work in our notice of the first edition need not be here repeated. The early call for a second edition shows that the work is appreciated and meets a real need.—J. A. A.

Mrs. Wheelock's 'Birds of California.'²—In this attempt to provide a non-technical manual of three hundred of the commoner birds of California the author has attained a high degree of success, and has also produced a work of much permanent value on account of the many original field observations, which add to the sum of our knowledge of the life histories of many of the species considered. As to the plan of the work: "Keys have been avoided and a simple classification, according to habitat or color, substituted," following a plan used by a previous author, here adopted and commended. Under the head of 'Contents,' the species are enumerated under the English names of the A. O. U. Check-List, beginning with the 'Water Birds,' which are grouped into sections according to their haunts, followed by 'Land Birds,' grouped as (1) 'Upland Game Birds,' (2) 'Birds of Prey,' and (3) 'Common Land Birds in Color Groups,' which latter are divided, on the basis of color, into eight minor groups. The species are arranged in the same incongruous order in the text, but are designated by the A. O. U. Check-List numbers and names, both tech-

¹ For collation and review of the first edition see Auk, XX, 1903, pp. 76–78.

² Birds of California | An Introduction | to more than Three Hundred Common | Birds of the State and Adjacent | Islands | With a Supplementary List of rare migrants, accidental | visitants, and hypothetical subspecies | By Irene Grosvenor Wheelock | author of "Nestlings of Forest and Marsh" | With ten full-page plates and seventy-eight drawings | in the text by Bruce Horsfall | [Vignette] Chicago | A. C. McClurg & Co. | 1904 — Sm. 8vo, pp. xxviii + 578, 10 half-tone plates, 78 text figures.

nical and vernacular. The descriptions are in small type and very brief, giving only the most characteristic features, the geographical distribution, breeding range and season, and nest and eggs. Then follows, in larger type, a short, well-written biography of the species. No originality, of course, is claimed for the technical descriptions, and many of the biographies of the water birds, and of some others, are compiled, and often in part quoted, with due credit, from previous authors. But a large proportion of the land birds have come within the personal experience of the writer, whose researches, begun in 1894, have extended throughout a large part of the State, and hence her biographies are based on original observations and contain much new information. The work closes with a briefly annotated 'Supplementary List' of the species and subspecies thus far recorded from California in addition to the three hundred formally treated, the list being compiled from authentic and accredited sources.

In the introduction the author makes some generalizations respecting the feeding habits of young birds that are to a large extent new and somewhat surprising; their confirmation or disproval opens up an interesting field of research. She says: "Long and careful study of the feeding habits of young birds in California and the Eastern United States has led the author to make some statements which may incur the criticism of ornithologists who have not given especial attention to the subject. For instance,—that the young of all macrochires, woodpeckers, perching birds, cuckoos, kingfishers, most birds of prey, and many seabirds *are fed by regurgitation from the time of hatching through a period varying in extent from three days to four weeks, according to the species.*... Out of one hundred and eighty cases recorded by the author, in every instance where the young were hatched in a naked or semi-naked condition they were fed in this manner for at least three days. In some instances the food was digested, wholly or in part; in others it was probably swallowed merely for convenience in carrying, and was regurgitated in an undigested condition." A few specific instances are cited here in illustration, and many others are given in the biographies.

Mrs. Wheelock's manual is in several ways noteworthy, and should prove most welcome to would-be bird students of the Pacific coast, and of interest to ornithologists in search of fresh information on the life histories of California birds.—J. A. A.

Torrey's 'The Clerk of the Woods.'¹—The thirty-two short essays here brought together received previous simultaneous publication in the 'Evening Transcript' of Boston and the 'Mail and Express' of New York. Those familiar with the author's previous books do not need to

¹The Clerk | of the Woods | By | Bradford Torrey | . . . | Boston and New York | Houghton, Mifflin and Company | The Riverside Press, Cambridge | 1903 — 16mo., pp. i-viii, 1-280. \$1.10 net, postage extra.

be told that they will find in 'The Clerk of the Woods' a series of out-of-door sketches of literary merit, and well adapted to furnish entertainment, as well as much information, to lovers of nature who enjoy what might be rather commonplace incidents and observations to the trained field naturalist when given the literary flavor Mr. Torrey is so skilful in imparting. The chapter entitled 'Popular Woodpeckers' tells at length of the nesting of a pair of Red-headed Woodpeckers in Newton, Mass., and incidentally pleasantly emphasizes the great popular interest in birds and their protection that has so happily of late been shown by the general public. It is a good commentary on the faithful work of the Audubon Societies. The chapters run through the year, from May to May, and include a record of trips to the seashore as well as inland, and while recording little that is new as natural history, serve to awaken pleasant reminiscences, or to incite the desire for future excursions to fields and woodlands to commune with Nature through "her visible forms." — J. A. A.

Mrs. Miller's 'With the Birds in Maine.'¹—The studies recorded in the fifteen chapters composing the present book were made, with two exceptions, in Maine, and are based on the experiences of the author during ten summers spent in different parts of the State. The localities include several points along the coast, and others situated far in the interior, so that shore birds, marsh birds, and the characteristic birds of the woodlands come within the purview of the work, the general character of which is suggested by such chapter titles as 'On the Coast of Maine,' 'Upon the Wood Road,' 'Mysteries of the Marsh,' 'In a Log Camp,' 'The Wiles of Warblers,' 'Flycatcher Vagaries,' etc. The table of contents includes the names of birds especially mentioned, and there is a good index. The book is written in the author's well-known agreeable style and its perusal will doubtless give pleasure to the many bird lovers who like detailed accounts of field experiences with birds.—J. A. A.

Kumlien and Hollister's 'The Birds of Wisconsin.'²—Respecting the present list the authors state: "We have made no attempt at descriptions of birds, nor have we gone to any length in discussing their habits. Our whole aim and object has simply been to bring our knowledge of Wiscon-

¹ With the Birds | in Maine | By | Olive Thorne Miller | [Vignette] Boston and New York | Houghton, Mifflin and Company | The Riverside Press, Cambridge | 1904—16mo., pp. ix+300. \$1.10 net.

²The Birds of Wisconsin. By L. Kumlien and N. Hollister. Bulletin of the Wisconsin Natural History Society, Vol. III (N. S.), Nos. 1-3, Jan., April, and July, 1903, pp. i-iv, 1-143, with 8 half tone plates. Published with the coöperation of the Board of Trustees of the Milwaukee Public Museum.

in ornithology, as regards occurrence and abundance, up to date, and to present a carefully compiled list of all those species and subspecies which have positively been known to occur within the limits of the State at any time, with as exact, simple, reliable and accurate an account of such occurrence as possible." "Starting in 1899, with a list of 365 species and subspecies that had been recorded from, or were supposed to have occurred at some time within the State, the number has fallen away from time to time, until now we recognize but 357 in all, that we believe are really entitled to a place, and are therefore embraced in the list proper of the present paper."

The list proper is followed by a 'Hypothetical List' of 21 species. Several of these have been attributed to the State, but on what the authors consider unsatisfactory evidence. In several cases, if not in most, their occurrence in the State is not improbable, and therefore the rigid conservatism that has led the authors to exclude them, and thus draw a sharp line between the known and the unknown, is to be emphatically commended. Specimens difficult of determination appear to have often been referred to experts for identification. Thus a number of western forms, included on the basis of one or two specimens taken in the State, rest on the authority of Mr. Brewster, as *Empidonax traillii*, *Junco montanus*, *Hylocichla ustulatus almae*, etc.

Among the half-tone plates is one showing 'Nest and Eggs of Blue-winged X Nashville Warbler,' with a statement in the text of the evidence for the belief in this alleged strange parentage. It is also stated that the Short-eared Owl is destructive "to smaller birds during the breeding season," and a list of some thirty species is given of victims identified from wing and tail feathers taken from a mass of such debris on which a family of young owls was resting.

It is only necessary to add that the list is liberally and judiciously annotated, that the authors appear to have strictly adhered to the plan outlined in the foregoing extracts from their prefatory note, and have thus given to the public a résumé of Wisconsin ornithology entitled to take its place, for accuracy and authoritativeness, in the front rank of local lists. The paper is well printed, and exceptionally free from typographical errors, notwithstanding the lamented death of the senior author, Mr. Kumlien, before the manuscript was completed, and the absence of the junior author, Mr. Hollister, in Alaska while the paper was passing through the press.—J. A. A.

Sillaway's 'The Birds of Fergus County, Montana.'¹—Fergus County,

¹ The Birds of Fergus County, Montana. By P. M. Sillaway, Member of the American Ornithologists' Union, Author of Sketches of Some Common Birds, Summer Birds of Flathead Lake, etc. Bulletin No. 1, Fergus County Free High School, Lewistown, Mont., 1903. 8vo, pp. 77, 17 half-tone plates and map.

in central Montana, is varied in its physical features, its western portion including several outlying spurs of the Rocky Mountains, with also two rather isolated groups of mountains, the Judith and Moccasins, in its central portion, while the eastern half is plains and 'bad lands.' The elevation varies from three thousand to eight thousand feet. The bird fauna is correspondingly varied, consisting of the usual species of the northern plains region, with a mixture of alpine forms that extend eastward from the Rocky Mountains.

The present list numbers 179 species, divided into: "Residents, 30 species; summer residents, 101 species; migrants, 31 species; winter residents or visitors, 13 species; other visitors, 4 species."

The list is based partly on the author's observations made during several years' residence in the county, and partly on the published records of other observers. 'A Partial Bibliography of Montana Birds' occupies three pages preceding the list,¹ and there are two pages descriptive of the topography and boundaries of the county. In addition to the usual annotations, a short description (usually of two to four lines) is given of each species, for the convenience of "teachers and others interested in nature study." In many instances, in the case of the lesser known western species, much original biographical matter is included. The large number of half-tones are from photographs of living birds, by Mr. E. R. Warren of Colorado Springs, and of nests and eggs, by Prof. M. J. Elrod of the University of Montana. An interesting feature of the work is its publication as a special 'Bulletin' by the Board of Trustees of the Fergus County Free High School, of which Mr. Silloway is the Principal, apparently for free distribution to those interested, and as a part of the educational mission of the school. The list, while not presumed to be complete, is believed to be as nearly so as present information will permit, and will serve as an excellent basis for further investigation.—J. A. A.

Oberholser's 'Review of the Wrens of the Genus *Troglodytes*'.²—The strictly American genus *Troglodytes*, as here defined, includes not only the species usually heretofore referred to it, but also many West Indian forms which have been commonly referred to *Thryophilus*. The one exception of exclusion is the *Troglodytes browni* Bangs, from the mountains of Chiriqui, Panama, which is made the type of a new genus *Thryorchilus*. Thirty-seven forms are recognized, of which 18 are given the rank of species, and 19 that of subspecies, three of the latter being described as new. The status and nomenclature of the North

¹ By a curious typographical error Coues is uniformly entered as "Coues, Elliott B.", though the name is elsewhere correctly given. Also, on p. 36, *Melanerpes "erythrophthalmus"* is evidently a lapsus for *erythrocephalus*.

² A Review of the Wrens of the Genus *Troglodytes*. By Harry C. Oberholser, Assistant Ornithologist, Department of Agriculture. Proc. U. S. Nat. Mus., Vol. XXVII, No. 1354, pp. 197–210, with map. Feb., 1904.

American forms remains unchanged. The group ranges from southern Canada to Cape Horn, including the West Indies.—J. A. A.

Oberholser on the American Great Horned Owls.¹—Mr. Oberholser considers the Great Horned Owls of America—North, Central, and South—as all referable to a single species, which he regards as divisible into 16 subspecies, of which 7 are restricted to Mexico, Central America, and South America, the remaining 11 coming within the limits of the A. O. U. Check-List—an increase of 4 over the number hitherto recognized in the Check-List. He follows Mr. Stone (Auk, XX, 1903, pp. 272-276) in adopting *Asio* in place of *Bubo* for the name of the genus, and takes the name *magellanicus* in place of *virginianus* for the species, the former having one page precedence over the latter in Gmelin's 'Systema Naturæ,' where both names were originally given. Both names have heretofore been in current use, but the forms to which they were given have generally been held to be specifically distinct. Now that it is found necessary to unite them, *magellanicus* becomes, unfortunately, the correct name for the group, thus replacing the long familiar designation *virginianus* for the North American forms. Mr. Oberholser's revision is based on an examination of "more than 200 specimens, representing all but one of the American forms." The North American forms recognized are the following:

1. *Asio magellanicus pallescens* (Stone). "Western Texas to southeastern California; south to northern Mexico."
2. *Asio magellanicus pacificus* (Cassin). "California, except the southeastern part and the northern and central coast districts; extending northward to Fort Klamath, Oregon, eastward to San Francisco Mountains, Arizona."
3. *Asio magellanicus elachistus* (Brewster). "Southern Lower California."
4. *Asio magellanicus icelus* Oberholser. "Coast of California, north of about 35° north latitude."
5. *Asio magellanicus lagophonus* Oberholser. "Washington and northern Oregon (excepting the coast region), with Idaho; north through eastern and Central British Columbia to Cook Inlet and the interior of Alaska."
6. *Asio magellanicus saturatus* (Ridgway). "Pacific coast region, from Washington (and probably at least northern Oregon) north to southern Alaska."
7. *Asio magellanicus heterocnemis* Oberholser. "Labrador, including at least the north coast of the Territory of Ungava."

¹ A Revision of the American Great Horned Owls. By Harry C. Oberholser, Assistant Ornithologist, Department of Agriculture. Proc. U. S. Nat. Mus., Vol. XXVII, No. 1352, pp. 177-192. Feb. 1904.

8. *Asio magellanicus virginianus* (Gmelin). "Southern Canada and eastern United States, west to Ontario, Wisconsin, Iowa, and eastern Texas; accidental in Ireland."
9. *Asio magellanicus algistus* Oberholser. "Northwest coast region of Alaska."
10. *Asio magellanicus occidentalis* (Stone). "Western United States, from Minnesota and Kansas to Nevada, southeastern Oregon, Utah, and Montana; south in winter to Iowa."
11. *Asio magellanicus wapacuthu* (Gmelin). "Northern Canada, from Hudson Bay to the Valley of the Mackenzie River; south in winter to the northern United States, from Idaho to Wisconsin."—J. A. A.

Snodgrass and Heller on the 'Birds of the Galapagos Archipelago.'¹

— This new revision of the birds of the Galapagos Archipelago recognizes 80 species and 30 additional subspecies. The synonymy, and the bibliographical references that refer especially to the Galapagos, are given for each, with its range, and especially its distribution and manner of occurrence in the Archipelago, together with biographical observations, often extended, notes on the color of the naked parts, etc., and many tables of measurements of large series of specimens. The authors follow rather closely the nomenclature of Rothschild and Hartert, using trinomials for insular forms when their variations overlap, "regardless of the possibility or impossibility of their interbreeding." The *Geospiza* group, sometimes separated into four or more genera, is treated as a genus with three subgenera. Six different phases of plumage are described, and denominated 'stages,' and numbered I to VI; three of these are found to coincide with the differences in the form of the bill, on which the subgeneric groups have been principally based, while the other three are immature phases characterizing young birds, shared unequally by the members of the several subgenera. The discussion of this group, with the voluminous but important notes on habits, song, etc., occupies 75 pages, or nearly one half of the entire memoir.

Although Snodgrass and Heller have described (in previous papers) a number of new species and subspecies from the Galapagos, the number of forms (110) now recognized exceeds by two only the number given by Rothschild and Hartert in 1899,² quite a number of the 14 added by these authors being here reduced to synonyms.

¹ Papers from the Hopkins-Stanford Galapagos Expedition, 1898-1899. XVI. Birds. By Robert Evans Snodgrass and Edmund Heller. Proc. Washington Acad. Sci., Vol. V, pp. 231-372. Jan. 28, 1904.

² For a notice of Rothschild and Hartert's 'Review of the Ornithology of the Galapagos Islands,' see Auk, XVII, July, 1900, pp. 300-303; for a notice of Ridgway's 'Birds of the Galapagos Archipelago' see *ibid.*, XIV, July, 1897, pp. 329, 330.

This is the third extended memoir on Galapagos Islands birds published within the last seven years, each based on extensive material, and each marking an important advance in our knowledge of this peculiarly interesting ornis. In the memoir now under review there is no reference to previous work in the same field, beyond the bibliographical citations under the species and in the general text. Some reference to the general history of the subject, and some statement of their opportunities and resources, and of the results reached, would have been a good addition to this important contribution to the literature of Galapagan ornithology.—J. A. A.

Shufeldt on the Osteology of the Halcyones and Limicolæ.—In the 'American Naturalist' for October, 1903, Dr. Shufeldt devotes considerable space to a consideration of the Kingfishers,¹ with reference to their osteology and systematic position. It is in the main an amplification of his paper on the 'Osteology of *Ceryle alcyon*', published in 1884 (*Journ. Anat. and Phys.*, XVIII, 1884, pp. 279-294, pl. xiv), with the same illustrations, here reproduced in half-tone. The structure of this species is compared with allied forms, but not much new light is thrown upon the relationships of the group, nor is any very positive opinion advanced as to its nearest affinities, though believed by the author to be most nearly related to the Galbulidæ, an opinion shared by previous writers on the subject.

Respecting his paper on the osteology of the Limicolæ,² his own opinion is to the effect that "it is probably the most extensive contribution to the osteology and taxonomy of the Limicole that has appeared from the pen of any writer on the subject up to the present time." The 'skeletology' of each of the principal types is described in considerable detail, the paper closing with a synopsis of their leading osteological characters, and a review of their affinities. The Limicole are regarded as a suborder of the Charadriiformes, and are divided into eight families, which correspond to those adopted in the A. O. U. Check-List, except that the subfamily *Arenariinae* of the Check-List is given the rank of a family.—J. A. A.

Evans's 'Turner on Birds.'³—This is a republication, with translation

¹ On the Osteology and Systematic Position of the Kingfishers. (*Halcyones*) By R. W. Shufeldt. Amer. Nat., Vol. XXXVII, Oct. 1903, pp. 697-725, figs. 1-3.

² Osteology of the Limicolæ, By Dr. R. W. Shufeldt. Ann. Carnegie Mus., Vol. II, 1903, pp. 15-70, pl. i, and 27 text figures.

³ Turner on Birds: | a short and succinct history | of the | principal birds noticed by Pliny and Aristotle, | first published by | Doctor William Turner, 1544. | Edited, with Introduction, Translation, Notes, and Appendix, | by | A. H. Evans, M. A. | Clare College, Cambridge. | Cambridge: | At the University Press | 1903—8vo, pp. i-xviii, 1 l. (transcript of original title page) + pp. 1-223.

and notes, of one of the most noteworthy early publications on birds, and has thus not only a peculiar interest, but is full of suggestive and interesting information, bearing especially upon the origin and early use of many of the present technical names of birds. Of this work, the translator tells us: "Turner's object in writing the present treatise is fully set forth in his 'Epistola Nuncupatoria' prefixed to it. While attempting to determine the principal kinds of birds named by Aristotle and Pliny, he has added notes from his own experience on some species which had come under his own observation, and in so doing he has produced the first book on Birds which treats them in anything like a modern scientific spirit and not from the medical point of view adopted by nearly all his predecessors; nor is it too much to say that almost every page bears witness to a personal knowledge of the subject, which would be distinctly creditable even to a modern ornithologist."

Turner was one of the most learned men of his time. The date of his birth is not given; he graduated a B. A. from the University of Cambridge, of which he was elected a fellow in 1530. He was a zealous student of botany, and in 1538 published a work on plants, and later others on the same subject. He traveled extensively on the continent, where he met and became a personal friend of Gesner, to whose 'Historia Animalium' he made contributions. He was, first of all, a religious reformer, and, "his scientific work apart, nearly the whole of Turner's life was spent in religious controversy." In the dedication of his book on 'The History of Birds' (mentioned above) to the then Prince of Wales, he says, in it "I have placed for your pleasure the Greek, German, and British names side by side with the Latin"; and he proposed, under certain conditions, to "bring to the light of day a further edition of this little book with figures of the birds, their habits, and curative properties, as well as another book on plants."

It is hard to characterize the peculiar interest this "little book" has for the present day bird student; but not least of course is the antiquarian, from its curious revelations of the beginnings of modern knowledge of birds, the conjectures that prevailed in place of positive information, and the early application of many names now so differently employed in technical nomenclature. The editor and translator, seconded by the Syndics of the University Press, has opened to the general reader a previously inaccessible and practically sealed book of unusual interest, for which service we owe a debt of gratitude.—J. A. A.

Recent Papers on Economic Ornithology.—In 'Birds of a Maryland farm'¹ Dr. Judd has presented us with a study of local conditions as pre-

¹ Birds of a Maryland Farm, A Local Study of Economic Ornithology. By Sylvester D. Judd, Ph. D., Assistant, Biological Survey. U. S. Department of Agriculture. Division of Biological Survey—Bulletin No. 17, Washington, 1902. 8vo, pp. 116, with 17 half-tone plates and 41 text figures.

sented at the Bryan farm, at Marshall, Md., situated about fifteen miles south of Washington. The farm contains about 230 acres, of which 150 are cultivated and 80 are in woodland. A study of the food habits of the birds was continued at frequent intervals from July 30, 1895, to July 24, 1902, including every month of the year except January. The method of investigating the food of birds by examination of the contents of stomachs, says Dr. Judd, in which the material has been collected from all parts of the United States, may give misleading results; "the relation of birds to a certain locality or particular farm cannot always be exactly tested by conclusions drawn from a large range of territory. The exact damage to crops is not revealed by stomach examination. A bird may have punctured several grapes in each of a hundred clusters and yet betray to the microscope no sign of its vicious habits," etc. In the present paper Dr. Judd gives us in detail the methods and results of his work on a Maryland farm, and here attempts "to determine whether a given species is, on the whole, helpful or harmful to the farm in question." The principal species are reported upon in detail, with finally a general statement of his conclusions as to what birds are really injurious, what beneficial or neutral, and the manner in which their food habits affect the question of their utility.

'Two Years with the Birds on a Farm,' by Mr. Edward H. Forbush,¹ recounts observations made by him on a farm in Wareham, Mass., and is a valuable contribution to the subject of economic ornithology. The ways in which certain birds are useful to the farmer are stated with convincing detail, and the reprehensible traits of some others are not concealed, especially the nest-robbing proclivities of crows, jays, and crow blackbirds. While the crows and jays are useful as insect destroyers, they are held to be "very largely responsible for the decrease of the smaller birds."

'Boll Weevils and Birds' is an address delivered by Prof. H. P. Attwater² at the Texas Cotton Growers' Association Convention held at Dallas, Texas, Nov. 6, 1903. It is an earnest appeal for the legal protection of birds in Texas for the aid they render in checking the increase of noxious insects, including the cotton boll weevil. The address is published and given free distribution by the Passenger Department of the Southern Pacific Railroad.

¹ Two Years with the Birds on a Farm. Lecture by Edward Howe Forbush, Ornithologist, Massachusetts State Board of Agriculture, delivered at the public winter meeting of the Massachusetts State Board of Agriculture at North Adams, Dec. 2, 1902. Reprinted from Fiftieth Ann. Rep. Mass. State Board of Agriculture. 8vo, pp. 53, with 8 half-tone plates, and 6 text figures.

² Boll Weevils and Birds. Address by Prof. H. P. Attwater, Industrial Agent Southern Pacific, at the Second Annual Convention of the Texas Cotton Growers' Association, Dallas, Texas, Nov. 6, 1903. 8vo. pp. 11.

'Audubon Societies in their Relation to the Farmer.'—In a paper of about a dozen pages,¹ with the above title, Mr. Oldys has given a clear and succinct account of the Audubon Societies and their work. After referring briefly to the economic value of birds, and to the causes that have operated to effect their decrease, he proceeds to an account of the Audubon Societies, beginning with the first national movement in 1886, and the reawakening of bird protection sentiment in 1896, resulting in the founding of some thirty societies with, in 1902, a joint membership of 65,000. Their purposes and methods of work are detailed and a résumé is given of the results of their efforts, with finally a statement of 'The Farmer's Interest in Bird Protection,' or, rather, of why he should be interested in it.—J. A. A.

Summary of Game Laws for 1903.²—This presents, in a brief form for ready reference, "the provisions of the various State laws which primarily form the basis of the Lacey act and which govern the trade in game, namely, those relating to close seasons, licenses, shipment, and sale." The scope of the summary includes the United States and Canada, and it being necessary to condense as much as possible, the matter is mostly presented in tabular form, and in a series of maps. The tabulated matter shows: (1) the close seasons for game in the United States and Canada (pp. 9-19); (2) export of game prohibited by State laws (pp. 22-26); (3) restrictions on sale of game (pp. 32-35); licenses for hunting game (pp. 37-40); (5) close seasons for game in the United States and Canada, by States and Provinces (pp. 44-48); (6) close seasons for game under County laws (pp. 48-53); summary of the principal restrictions by non-residents (pp. 53-56). Five maps show which States and Provinces (1) require nonresidents to obtain hunting licenses, and the amount of the license fee; (2) which prohibit export of game; (3) which permit export of game for propagation; (4) which prohibit sale of game at all times; (5) which limit the amount of game that may be killed. All the States, except Kentucky and Mississippi, have some kind of a nonexport law, varying in scope in respect to the kinds of game thus protected. All the States and Territories now prohibit the export of quail, except four, in one of which no quail occur, and in two of which there is no nonexport law; in the other, several counties prohibit such export. "Nearly

¹ Audubon Societies in their Relation to the Farmer. By Henry Oldys, Assistant Biologist, Biological Survey. Yearbook of Department of Agriculture for 1902, pp. 205-218, with 2 plates and 2 text figures.

² Game Laws for 1903. A Summary of the Provisions relating to Seasons, Shipment, Sale, and Licenses. By T. S. Palmer, Henry Oldys, and R. W. Williams, Jr., Assistants, Biological Survey. U. S. Department of Agriculture, Farmers' Bulletin No. 180. Washington: Government Printing Office, 1903. 8vo, pp. 56.

every State in which Prairie Chickens occur now has a nonexport law, the effect of which, combined with sale restrictions, is to make the sale of Prairie Chickens illegal outside of their normal range." Only fourteen States and Alaska permit the export of game intended for propagation; only six of these States are east of the Mississippi River. "Thirty-four States and Territories and most of the Provinces of Canada now prohibit the sale of all or certain kinds of game at all seasons." The Ruffed Grouse cannot be legally sold in eleven States and three Provinces. A steady increase in the prohibitions against the sale of game has continued during the last three years, and the general outlook is hopeful for the preservation of most kinds of game animals and birds, many of which were so recently threatened with speedy extermination. This Bulletin gives a most interesting and valuable summary of the present status of game protection in the United States and Canada.—J. A. A.

NOTES AND NEWS.

GURDON TRUMBULL, a Fellow of the American Ornithologists' Union, died at his home in Hartford, Conn., Dec. 28, 1903, in his sixty-third year, being the last of three brothers, each of whom was distinguished in his own way, Dr. J. Hammond Trumbull, the philologist, and Rev. H. Clay Trumbull, a well known editor and writer.

He was born in Stonington, Conn., May 5, 1841, and early in life showed a natural fondness for art. He studied under various teachers in Hartford and also with James M. Hart in New York, progressed rapidly and soon became prominent as a painter of fish, his principal pictures in that line being 'Over the Fall,' 'A Plunge for Life,' and 'A Critical Moment.' These were extensively copied, and many chromos were made that had a large sale. Perhaps the best of his smaller pieces—a perfect gem—was a painting of the common sunfish.

While always a lover of nature, and for many years an ardent sportsman, he later in life became especially interested in ornithology. He wrote 'Names and Portraits of Birds which Interest Gunners, with Descriptions in Language Understood of the People,' published by Harper & Brothers in 1888. He contributed to 'Forest and Stream' for Dec. 11, 1890, a notable paper on the 'American Woodcock,' which contained the first record of a bird's power to curve the upper mandible, and to 'The Auk' in 1892 and 1893 (Vol. IX, pp. 153-160, and Vol. X, pp. 165-176) two articles on 'Our Scoters,' giving careful and detailed descriptions of the species from fresh specimens.

Mr. Trumbull was an enthusiastic collector, and an excellent judge of china, and his cabinet contained some of the choicest specimens extant. About his last art work was the illustrating of the book written by his sister, Mrs. Annie Trumbull Slosson, 'The China Hunter's Club,' published in 1898.

He was deeply interested in the welfare of the lower animals and wrote much on humane subjects. Although seldom seen at the Annual Congress of the Union he always had the best interests of the Society at heart. He was of a quiet, retiring disposition and highly esteemed in the community in which he resided. In his death "the world lost a man who daily made it better."—J. H. S.

JOSIAH HOOPES, an Associate of the American Ornithologists' Union, died at his home, Westchester, Pennsylvania, on January 16, 1904, in the seventy-second year of his age. Although not a contributor to ornithological literature, Mr. Hoopes was from boyhood deeply interested in birds and was ever ready to aid any investigator by drawing upon his store of notes or specimens. In early life he was associated with several of the ornithologists of the Philadelphia Academy, notably Cassin, Turnbull, and Bernard Hoopes; and took much interest in the institution. Later he began the formation of a collection of eggs and skins of North American land birds. Of the latter he accepted only first class specimens, and in particulars of arrangement, labelling, etc., his collection was a model of neatness. A special room was added to his house for the reception of his ornithological treasures and cases were prepared to accommodate a series of every species and subspecies in the A. O. U. list. The great majority of these were secured, and Mr. Hoopes's greatest delight was to show to visitors of kindred tastes his beautiful specimens. Some years ago this collection, numbering nearly 8000 skins, was purchased by the Philadelphia Academy of Natural Sciences, and the specimens have since been used in many investigations.

Mr. Hoopes was born in Westchester, November 9, 1832, the son of Pierce and Sarah A. Hoopes. He was educated in Philadelphia, where his family resided during his boyhood, and in 1850 returned to Westchester. He had always been deeply interested in botany and deciding to make this his business he opened in 1853 a small greenhouse, which to-day has grown into one of the largest nursery establishments in the United States, under the firm name of Hoopes Brothers and Thomas. Mr. Hoopes spent some time in travel, visiting the various botanic gardens of Europe, and contributed numerous articles to horticultural journals, besides writing the 'Book of Evergreens.' He was a member of the Society of Friends and one of the leading citizens of his native town, ever as ready to aid in public work as in furthering the studies in which he was interested.

The influence of such men as Josiah Hoopes in advancing scientific work is hard to estimate, and all Pennsylvania bird students have lost a staunch supporter, while to those who knew him personally he will ever be remembered as a generous host and a true friend.—W. S.

LYMAN S. FOSTER, for a time an Active Member of the American Ornithologists' Union, died of pneumonia at St. Luke's Hospital, New York City, January 6, 1904. Mr. Foster was born at Gloucester, Mass., November 25, 1843, but the greater part of his life was spent in New York City, as a stationer and dealer in natural history books, and from 1886 to 1900 he was the authorized agent of the A. O. U. for the sale of its publications and the distribution of 'The Auk.' He took an active interest in ornithology, and from time to time contributed short papers on North American birds to various natural history publications, including 'The Auk,' and the 'Abstract of Proceedings' of the Linnaean Society of New York, of which society he was for some years treasurer. His principal contribution to ornithological literature is a minutely detailed bibliography of the ornithological writings of the late George N. Lawrence, published in 1892, forming No. IV of the series of 'Bibliographies of American Naturalists,' issued by the U. S. National Museum.

A PROPOSED general work on birds, in large quarto, with plain or colored plates, as may be required, is announced, to be prepared by a "Committee composed of the best Ornithologists of the World." Each family will be published separately, with separate pagination, and will include synoptical tables and descriptions of the genera, species and sub-species, references to the original descriptions, the synonymy, and geographical distribution. The work will be published entirely in English, and the drawings will be by Keulemans. A specimen part, on the Eurylæmidæ, by E. Hartert, of the Zoölogical Museum of Tring, has been issued, and will be sent for inspection, post free, on application. This sample part shows that the work will prove of great convenience and value as a technical synopsis of the birds of the world. Subscriptions will be received only for the complete work, on the basis of 4 cts. per page of text, 30 cts. per plain plate, and 60 cts. per colored plate. Subscriptions should be addressed to P. Wytsman, 108, Boulevard du Nord, Bruxelles, Belgium. The New York agents are G. E. Stechert, and Westermann & Co.

MR. FRANK M. CHAPMAN requests the coöperation of ornithologists in the preparation of a proposed work on the Warblers of North America. Information in regard to those phases of the life-history of these birds on which observations are particularly desired will be gladly furnished by Mr. Chapman, who may be addressed at the American Museum of Natural History, New York City.